YAMAHA MBK

YQ100 '00

5ME1-AE1

SERVICE MANUAL

YQ100
SERVICE MANUAL
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NOTICE

This manual was written by the MBK INDUSTRIE primarily for use by YAMAHA and MBK dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on YAMAHA and MBK scooters have a basic understanding of the mechanical concepts and procedures inherent in scooter repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

MBK INDUSTRIE is continually striving to improve all models manufactured. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized YAMAHA and MBK dealers and will, where applicable, appear in future editions of this manual.

DOCUMENTATION TECHNIQUE
MBK INDUSTRIE

PARTICULARY IMPORTANT INFORMATION
This material is distinguished by the following notation :

⚠ — The safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠ WARNING — Failure to follow WARNING instructions could result in severe injury or death to the scooter operator, a bystander, or a person inspecting or repairing the scooter.

CAUTION: — A CAUTION indicates special precautions that must be taken to avoid damage to the scooter.

NOTE: — A NOTE provides key information to make procedures easier or clearer.

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HOW TO USE THIS MANUAL

This manual is intended as a handy, easy-to-read reference book for the mechanic. Comprehensive explanations of all installation, removal, disassembly, assembly, repair and check procedures are laid out with the individual steps in sequential order.

① The manual is divided into chapters. An abbreviation and symbol in the upper right corner of each page indicate the current chapter. Refer to "SYMBOLS".

② Each chapter is divided into sections. The current section title is shown at the top of each page, except in Chapter 3 ("PERIODIC CHECKS AND ADJUSTMENTS"), where the sub-section title(s) appears.

③ Sub-section titles appear in smaller print than the section title.

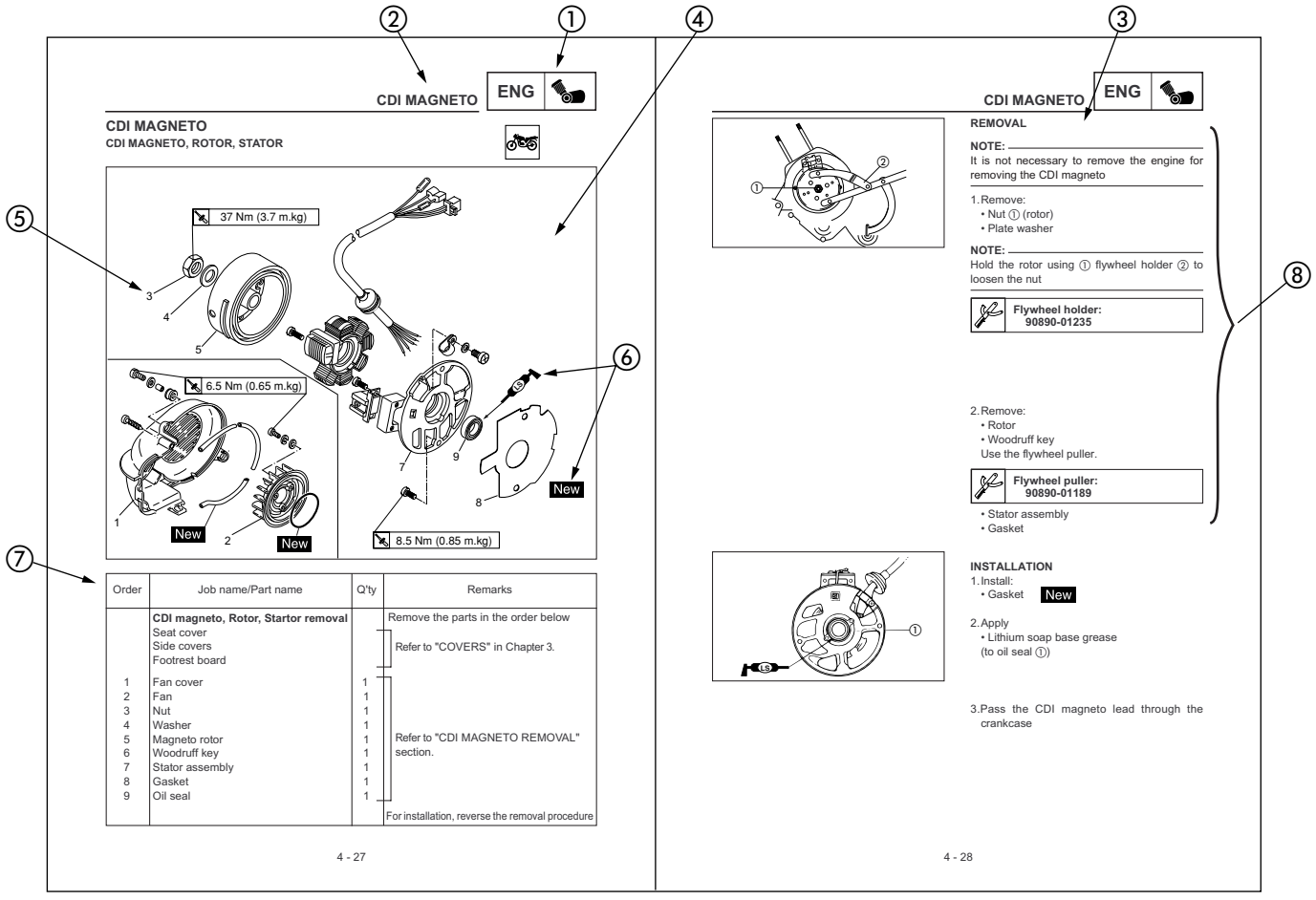
④ To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each removal and disassembly section.

⑤ Numbers are given in the order of the jobs in the exploded diagram. A circled number indicates a disassembly step.

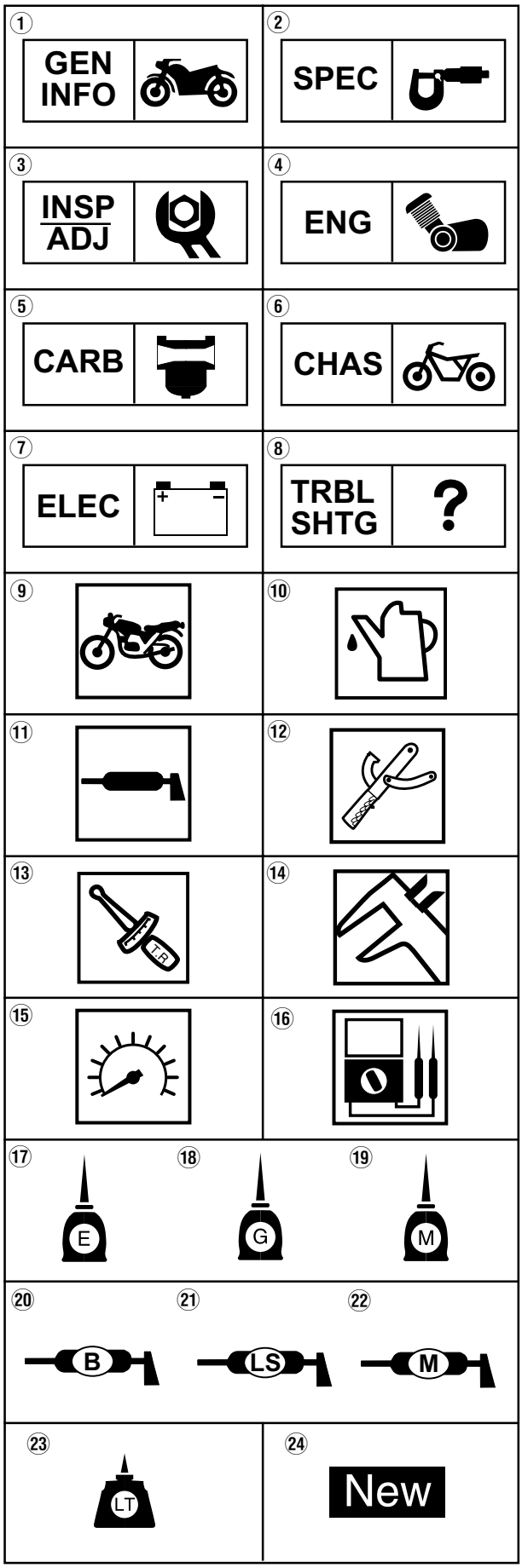
⑥ Symbols indicate parts to be lubricated or replaced. Refer to "SYMBOLS".

⑦ A job instruction chart accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc.

⑧ Jobs requiring more information (such as special tools and technical data) are described sequentially.



Order	Job name/Part name	Q'ty	Remarks
	CDI magneto, Rotor, Startor removal		Remove the parts in the order below
	Seat cover		
	Side covers		Refer to "COVERS" in Chapter 3.
	Footrest board		
1	Fan cover	1	
2	Fan	1	
3	Nut	1	
4	Washer	1	
5	Magneto rotor	1	Refer to "CDI MAGNETO REMOVAL" section.
6	Woodruff key	1	
7	Stator assembly	1	
8	Gasket	1	
9	Oil seal	1	
			For installation, reverse the removal procedure



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SYMBOLS

The following symbols are not relevant to every vehicle.

Symbols ① to ⑧ indicate the subject of each chapter.

① General information
② Specifications
③ Periodic checks and adjustments
④ Engine
⑤ Carburetor
⑥ Chassis
⑦ Electrical system
⑧ Troubleshooting

Symbols ⑨ to ⑯ indicate the following.

⑨ Serviceable with engine mounted
⑩ Filling fluid
⑪ Lubricant
⑫ Special tool
⑬ Tightening torque
⑭ Wear limit, clearance
⑮ Engine speed
⑯ Electrical data

Symbols ⑰ to ㉒ in the exploded diagrams indicate the types of lubricants and lubrication points.

⑰ Engine oil
⑱ Gear oil
⑲ Molybdenum disulfide oil
⑳ Wheel bearing grease
㉑ Lithium soap base grease
㉒ Molybdenum disulfide grease

Symbols ㉓ to ㉔ in the exploded diagrams indicate the following.

㉓ Apply locking agent (LOCTITE®)
㉔ Replace the part

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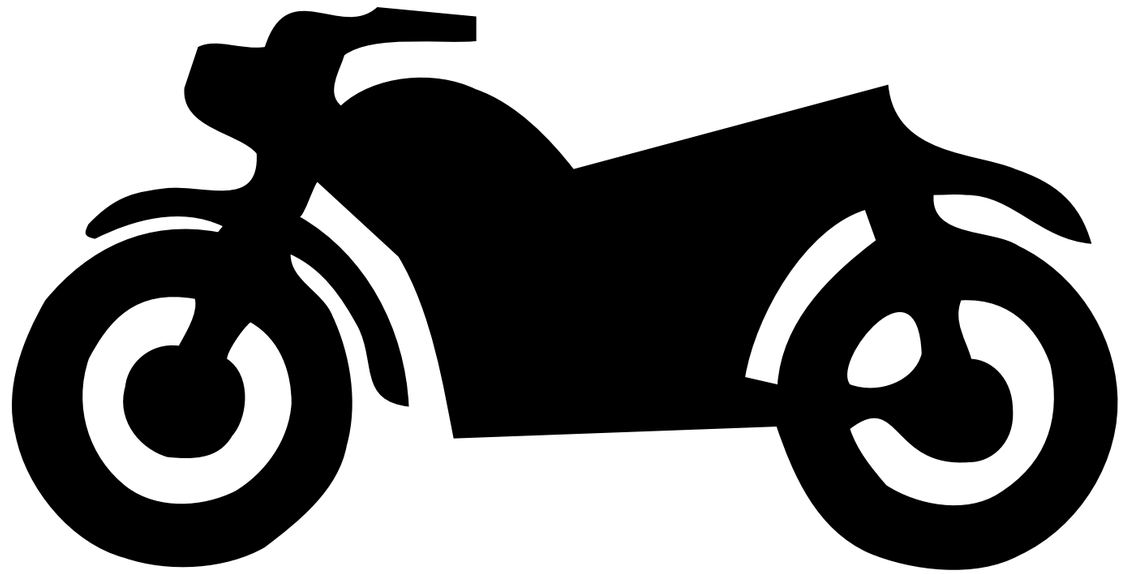
TABLE OF CONTENTS

GENERAL INFORMATION	GEN INFO 1
SPECIFICATIONS	SPEC 2
PERIODIC CHECKS AND ADJUSTMENTS	INSP ADJ 3
ENGINE	ENG 4
CARBURETOR	CARB 5
CHASSIS	CHAS 6
ELECTRICAL SYSTEM	ELEC 7
TROUBLESHOOTING	TRBL SHTG 8



GEN INFO

1

CHAPTER 1.
GENERAL INFORMATION

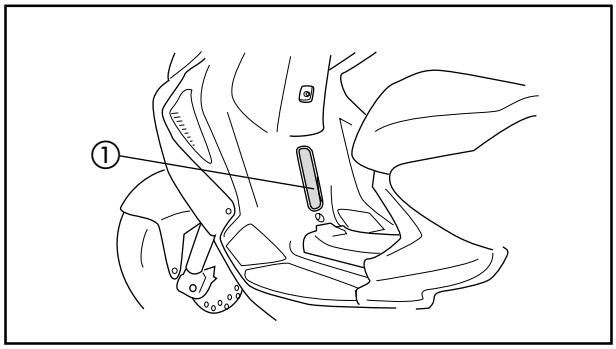
SCOOTER IDENTIFICATION 1-1
VEHICULE IDENTIFICATION NUMBER 1-1
ENGINE NUMBER 1-1

IMPORTANT INFORMATION 1-3
PREPARATION FOR REMOVAL AND DISASSEMBLY 1-3
REPLACEMENT PARTS 1-3
GASKETS, OIL SEALS, AND O-RINGS 1-3
LOCK WASHERS/PLATES AND COTTER PINS 1-4
BEARINGS AND OIL SEALS 1-4
CIRCLIPS 1-4

CHECKING THE CONNECTIONS 1-5

HOW TO USE THE CONVERSION TABLE 1-6

SPECIAL TOOLS 1-7



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GENERAL INFORMATION

SCOOTER IDENTIFICATION

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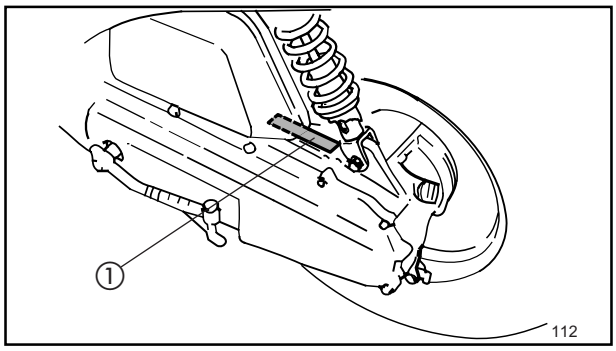
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped on the bottom of the frame as shown.

NOTE:

The vehicle identification number is used to identify your scooter and may be used to register your scooter with the licensing authority in your state.

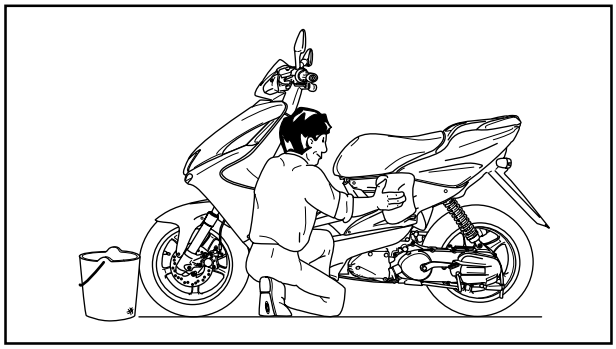


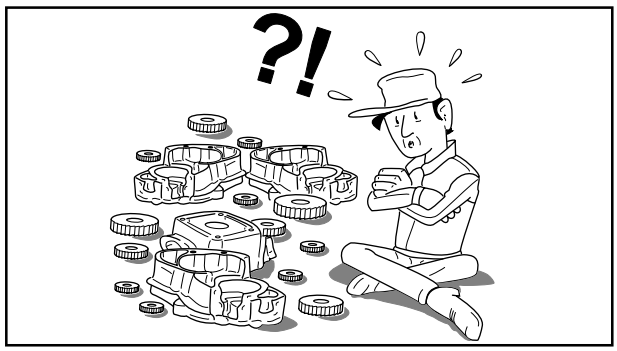
ENGINE NUMBER

The engine serial number ① is stamped on the crankcase as shown.

NOTE:

Designs and specifications are subject to change without notice.





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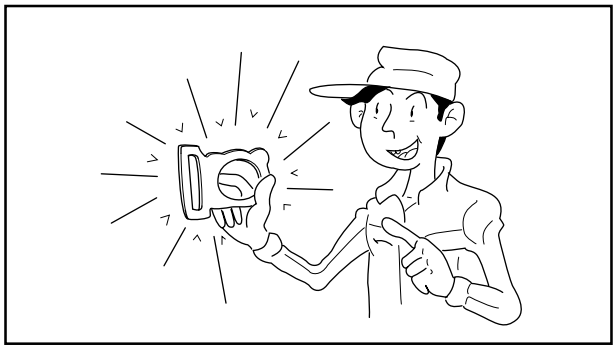
IMPORTANT INFORMATION

PREPARATION FOR REMOVAL AND DISASSEMBLY

1. Before removal and disassembly, remove all dirt, mud, dust and foreign material.
2. Use only the proper tools and cleaning equipment.
   Refer to the "SPECIAL TOOLS“.
3. When disassembling, always keep mated parts together. This includes gears, cylinders, pistons and other parts that have been „mated“ through normal wear. Mated parts must always be reused or replaced as an assembly.
4. During disassembly, clean all of the parts and place them in trays in the order of disassembly. This will speed up assembly and allow for the correct installation of all parts.
5. Keep all parts away from any source of fire.



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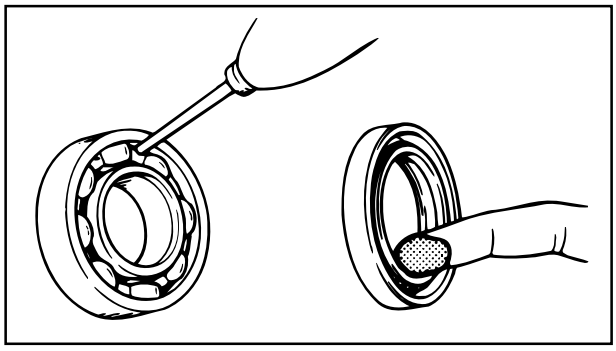
REPLACEMENT PARTS

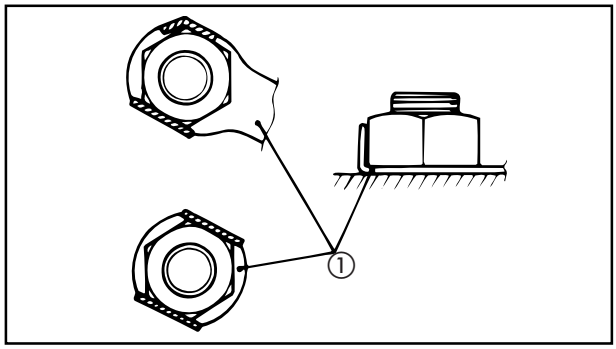
1. Use only genuine Yamaha/MBK parts for all replacements. Use oil and grease recommended by Yamaha/MBK for all lubrication jobs. Other brands may be similar in function and appearance, but inferior in quality.



EAS00022

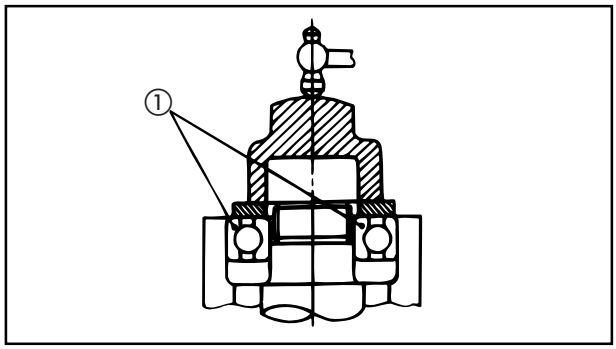
GASKETS, OIL SEALS AND O-RINGS

1. When overhauling the engine, replace all gaskets, seals and O-rings. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. During reassembly, properly oil all mating parts and bearings and lubricate the oil seal lips with grease.



EAS00023
LOCK WASHERS / PLATES AND COTTER PINS

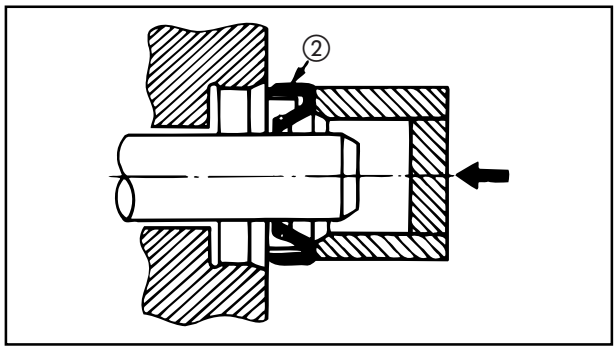
1. After removal, replace all lock washers / plates ① and cotter pins. After the bolt or nut has been tightened to specification, bend the lock tabs along a flat of the bolt or nut.



EAS00024
BEARINGS AND OIL SEALS

1. Install bearings and oil seals so that the manufacturer's marks or numbers are visible. When installing oil seals, lubricate the oil seal lips with a light coat of lithium soap base grease. Oil bearings liberally when installing, if appropriate.

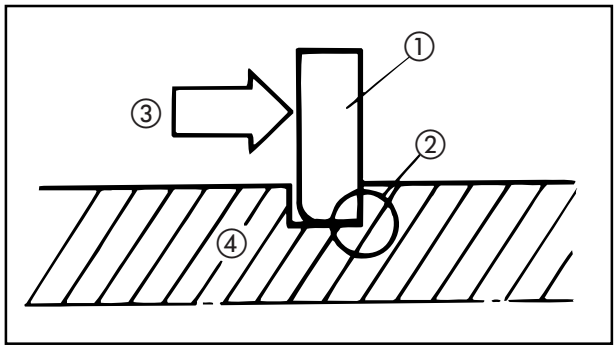
① Bearing



CAUTION:

Do not spin the bearing with compressed air because this will damage the bearing surfaces.

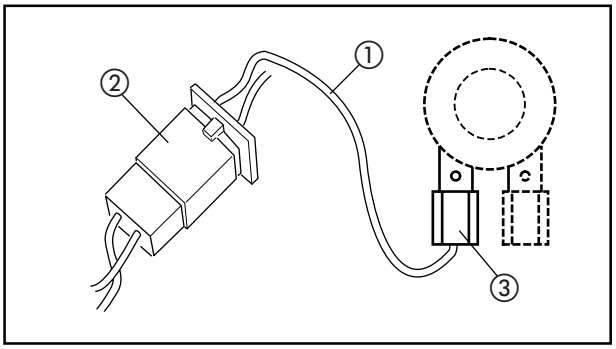
② Oil seal

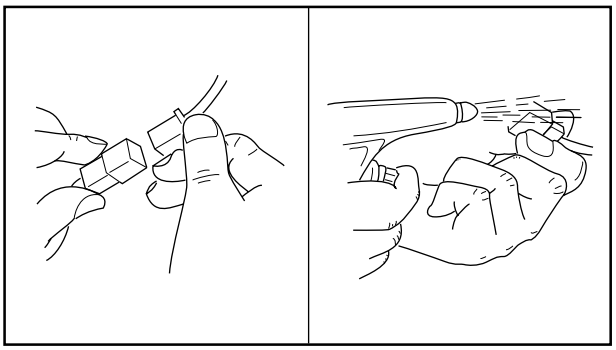


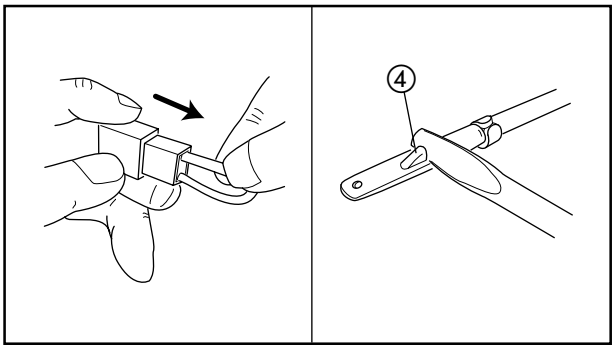
EAS00025
CIRCLIPS

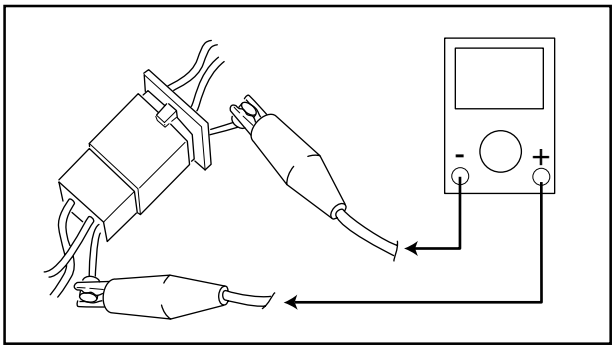
1. Before reassembly, check all circlips carefully and replace damaged or distorted circlips. Always replace piston pin clips after one use. When installing a circlip ①, make sure the sharp-edged corner ② is positioned opposite the thrust ③ that the circlip receives.

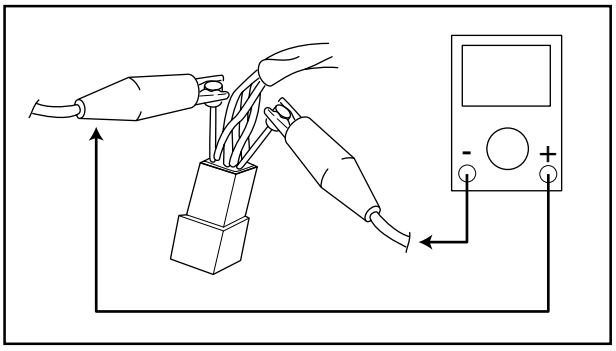
④ Shaft











EAS00026
CHECKING THE CONNECTIONS
Check the leads, couplers, and connectors for stains, rust, moisture, etc.

1. Disconnect:
   - lead ①
   - coupler ②
   - connector ③

2. Check:
   - lead
   - coupler
   - connector

   Moisture → Dry with an air blower.
   Rust/stains → Connect and disconnect several times.

3. Check:
   - all connections

   Loose connection → Connect properly.

NOTE:
If the pin ④ on the terminal is flattened, bend it up.

4. Connect:
   - lead
   - coupler
   - connector

NOTE:
Make sure all connections are tight.

5. Check:
   - continuity

   (with the pocket tester)

Pocket tester
90890-03112

NOTE:
If there is no continuity, clean the terminals.

NOTE:
When checking the wire harness, perform steps 1 to 3.

NOTE:
As a quick remedy, use a contact revitalizer available at most part stores.

HOW TO USE THE CONVERSION TABLE

All specification data in this manual are listed in SI and METRIC UNITS.
Use this table to convert METRIC unit data to IMPERIAL unit data.
Ex:

METRIC		MULTIPLIER		IMPERERIAL
** mm	x	0.03937	=	** in
2 mm	x	0.03937	=	0.08 in

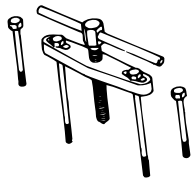
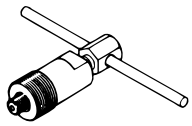
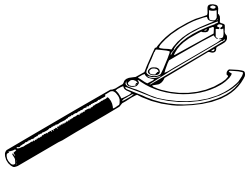
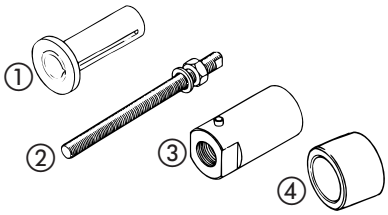
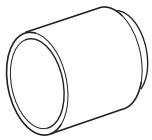
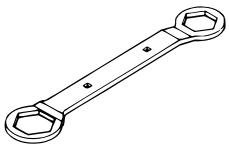
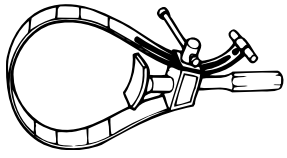
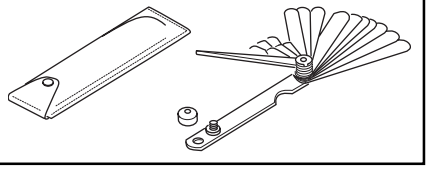
CONVERSION TABLE

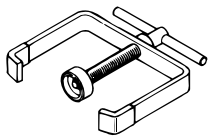
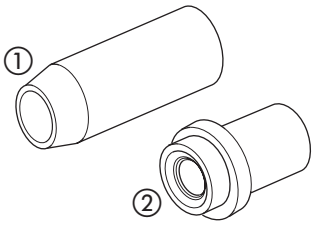
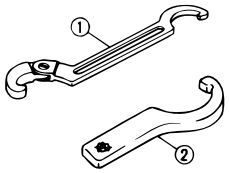
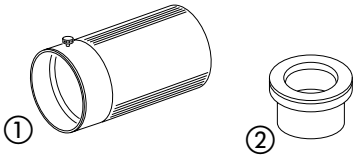
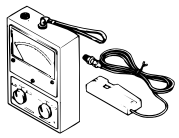
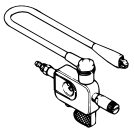
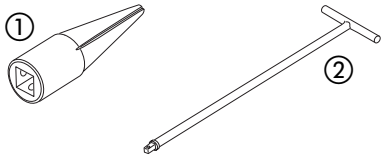
METRIC TO IMPERIAL			
	Metric unit	Multiplier	Imperial unit
Torque	m·kg	7.233	ft.lb
	m·kg	86.794	in.lb
	cm·kg	0.0723	ft.lb
	cm·kg	0.8679	in.lb
Weight	kg	2.205	lb
	g	0.03527	oz
Speed	km/h	0.6214	mph
Distance	km	0.6214	mi
	m	3.281	ft
	m	1.094	yd
	cm	0.3937	in
	mm	0.03937	in
Volume/ Capacity	cc (cm^3)	0.03527	oz(IMP liq.)
	cc (cm^3)	0.061102	cu.in
	lit (litre)	0.8799	qt(IMP liq.)
	lit (litre)	0.2199	gal(IMP liq.)
Miscella-neous	kg/mm	55.997	lb/in
	kg/cm^2	14.2234	psi(lb/in^2)
	Centrigrade	9/5(°C)+32	Fahrenheit(°F)

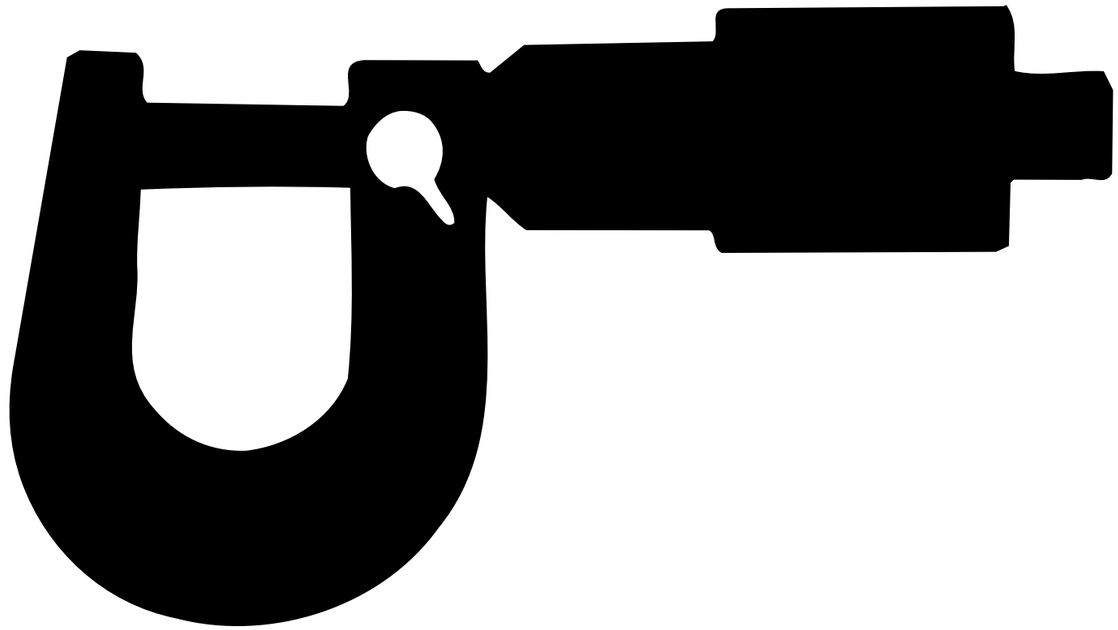
EAS00027
SPECIAL TOOLS

The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools as this will help prevent damage caused by the use of inappropriate tools or improvised techniques. Special tools, part numbers or both may differ depending on the country.

When placing an order, refer to the list provided below to avoid any mistakes.

Tool N°	Tool name/usage	Illustration
90890-01135	Crankcase separating tool This tool is used to separate the crankcase and remove the crankshaft.	
90890-01189	Flywheel puller This tool is used to remove the flywheel magneto.	
90890-01235	Rotor holding tool This tool is used to remove the flywheel magneto.	
90890-01274 90890-01275 90890-01277 90890-01288	Crankshaft installer pot ① Crankshaft installer bolt ② Adapter ③ Spacer ④ These tools are used to install the crankshaft.	
90890-01384	Oil seal guide This tool is used to protect the oil seal lip when installing the secondary sheave.	
90890-01348	Locknut wrench This tool is used when removing or installing the secondary sheave nut.	
90890-01701	Sheave holder This tool is used to hold the secondary sheave when removing or installing the nut.	
90890-03079	Thickness gauge This tool is used to measure the clearance.	

Tool N°	Tool name/usage	Illustration
90890-01337	Clutch spring holder. This tool is used for compressing the spring of the secondary sheave when removing the nut.	
90890-01409 90890-01410	Oil seal guide ① Oil seal installer ②. This tool is used to install the left side crankcase oil seal.	
90890-01268 90890-01403	Ring nut wrench ① Steering nut wrench ② These tools are used to loosen and tighten the steering ring nuts.	
90890-01367 90890-01400	Fork seal driver weight ①. Fork seal driver attachment (ø30) ② These tools are used when installing the fork seals.	
90890-03112	Pocket Tester This instrument is invaluable for checking the electrical system.	
90890-03113	Engine tachometer. This tool is needed for detecting the engine rpm.	
90890-06754	Ignition checker. This instrument is necessary for checking the ignition system components.	
90890-01294 ① 90890-01326 ②	Damper rod holder. T-handle. This tools are used when removing the front fork legs.	



SPEC 2

CHAPTER 2.
SPECIFICATIONS

GENERAL SPECIFICATIONS 2-1

MAINTENANCE SPECIFICATIONS 2-4
ENGINE 2-4
TIGHTENING TORQUES (ENGINE) 2-7
CHASSIS 2-9
TIGHTENING TORQUES (CHASSIS) 2-11
ELECTRICAL 2-13

GENERAL TORQUE SPECIFICATIONS 2-15

LUBRICATION POINTS AND LUBRICANT TYPES 2-16
ENGINE 2-16
CHASSIS 2-17

CABLE ROUTING 2-18

SPECIFICATIONS

GENERAL SPECIFICATIONS

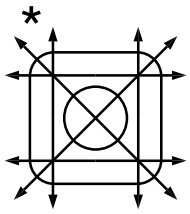
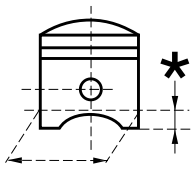
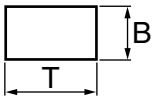
Model	YQ100
Dimensions:	
Overall length	1,762 mm
Overall width	690 mm
Overall height	1,151 mm
Seat height	812 mm
Wheelbase	1,272 mm
Minimum ground clearance	157 mm
Minimum turning radius	1,800 mm
Basic weight:	
With oil and full fuel tank	95 kg
Engine:	
Type	Air-cooled-2 stroke, gasoline torque induction.
Cylinder arrangement	Forward- inclined single cylinder
Displacement	101 cm^3
Bore x stroke	52.0 x 47.6 mm
Compression ratio	12:1 ± 0.5
Starting system	Electrical and Kick starter
Lubrication system:	Separate lubrification
Oil type or grade:	
Engine oil:	Yamalube 2 or 2 stroke engine oil (JASO FC grade or ISO EG-C, ISO EG-D grade).
Transmission oil	SAE 85W140 type SE
Oil capacity:	
Engine oil:	1.3 L
Transmission oil:	
Periodic oil change	0.11 L
Total amount	0.13 L
Air filter:	Wet type element
Fuel:	
Type	Regular unleaded gasoline with a research octane number of 91 or higher.
Tank capacity:	7.0 L
Carburetor:	
Type/quantity	TK ø 16
Manufacturer	TEIKEI

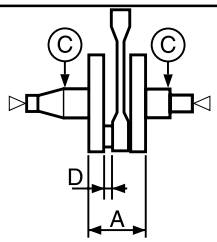
Model		YQ100
Spark plug:		
Type		BR8HS
Manufacturer		NGK
Gap		0.5 ~ 0.7 mm
Clutch type:		Dry, centrifugal automatic
Transmission:		
Primary reduction system		Helical gear
Primary reduction ratio		47 / 15 (3.133)
Secondary reduction system		Spur gear
Secondary reduction ratio		43 / 13 (3.308)
Transmission		V-belt
Operation		Automatic
Chassis:		
Frame type		Steel tube backbone
Caster angle		27°
Trail		89.4 mm
Tires:		
Type		Tubeless
Size	Front	130 / 60 -13
	Rear	140 / 60 -13
Manufacturer (Type)		MICHELIN(BOPPER) / PIRELLI (SL 36)
Wear limit (Front/Rear)		0.8 mm
Tires pressure (Cold tire):		
Front (single riding)		150 kPa (1.50 Kg/cm^2, 1.50 bar)
Rear (single riding)		150 kPa (1.50 Kg/cm^2, 1.50 bar)
Front (dual riding)		150 kPa (1.50 Kg/cm^2, 1.50 bar)
Rear (dual riding)		150 kPa (1.50 Kg/cm^2, 1.50 bar)
Brakes:		
Front brake type		Disk brake
Operation		Right hand operation
Rear brake type		Drum brake
Operation		Left hand operation
Suspension:		
Front		Telescopic fork
Rear		Unit swing
Shock absorber:		
Front		Coil spring/ Oil damper
Rear		Coil spring/ Oil damper

Model		YQ100
Wheel travel:		
Front		80 mm
Rear		72 mm
Electrical:		
Ignition system		CDI
Charging system		Flywheel magneto
Battery type/model		YT4L-BS
Battery capacity		12V 3AH
Headlight type:		Bulb
Bulb wattage x quantity:		
Headlight		12V 35W/35W x 1
Position light		12V 5W x 1
License light		12V 5W x 1
Taillight / brake light		12V 5W /21W x 1
Flasher light	Front	12V 10W x 2
	Rear	12V 10W x 2
Meter light		12V 1.2W x 2
Warning lights wattage/quantity:		
"OIL"		12V 1.2W x 1
"TURN"		12V 1.2W x 1
"HIGH BEAM"		12V 1.2W x 1

MAINTENANCE SPECIFICATIONS

ENGINE

Model	Standard	Limit
Cylinder head: Warp limit 	*** * Lines indicate straight edge measurements.	0.02 mm
Cylinder: Bore size Taper	 52.002 ~ 52.012 mm ***	 *** 0.05 mm
Piston: Piston clearance Piston size  Measuring point* Oversize: 1st 2nd	 0.044 ~ 0.045 51.958 ~ 51.967 mm 10 mm 52.52 mm 52.50 mm	 0.10 mm *** *** *** ***
Piston rings: Sectional sketch (BxT)/Type: Top ring  2nd ring End gap (Installed): Top ring 2nd ring Side clearance (Installed): Top ring 2nd ring	 1.2 x 2.05 mm/keystone 1.2 x 2.05 mm/keystone 0.15 ~ 0.35 mm 0.15 ~ 0.35 mm 0.03 ~ 0.05 mm 0.03 ~ 0.05 mm	 *** *** *** *** *** ***
Piston pin: Outside diameter Piston pin to piston clearance	 13.996 ~ 14.000 mm 14.004 ~ 14.015 mm	 13.975 mm 14.045 mm

Model	Standard	Limit
Crankshaft: 		
Crank width “A”	37.90 ~ 37.95 mm	***
Runout limit “C”	***	0.03 mm
Connecting rod length	79.9 ~ 80.1 mm	
Side clearance “D”	0.2 ~ 0.5 mm	***
Small End Free Play	0.4 ~0.8 mm	***
Automatic centrifugal clutch:		
Clutch shoe thickness	4.0 mm	2.5 mm
Clutch shoe spring free length	26.2 mm	***
Clutch housing inside diameter	112 mm	112.5 mm
Clutch-in revolution	2800 ~ 3400 r/min	***
Clutch-stall revolution	4500 ~ 5500 r/min	***
V-belt:		
Width	17.7 mm	16.0 mm
Transmission:		
Main axle runout limit	***	0.08 mm
Drive axle runout limit	***	0.08 mm
Kick starter:		
Type	Ratchet type	***
Kick clip tension force	0.15 ~ 0.25 kg	***
Carburetor:	TEIKEI	
I.D. mark	TK ø16	***
Main jet (M.J.)	# 76	***
Main air jet (M.A.J.)	***	***
Jet needle (J.N.)	# 3SOF-3/5	***
Needle jet (N.J.)	ø2.090	***
Cutaway (C.A.)	3.0	***
Pilot jet (P.J.)	# 44	***
Bypass 1 (B.P.1)	ø 0.80	
Air screw (A.S.)	1 5/8	***
Valve seat size (V.S.)	ø 1.80	***
Starter jet (G.S.1)	43	***
Engine idle speed	2000 ± 200 r/min	***

Model	Standard	Limit
Reed valve:		
Valve stopper height	6.0 ~ 6.4 mm	***
Reed Valve Clearance	Less than 0.2 mm	***
Lubrication System		
Autolub Pump		
Plunger diameter	2.5 mm	***
Autolub pump stroke/ Manufacturer	PLB-D39 / Dell'orto	
Minimum output at 3000rpm	4.5 cc/h	***
Maximum output at 3000rpm	16 cc/h	***

TIGHTENING TORQUES

ENGINE

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque		Remarks
				Nm	m.kg	
Spark plug	-	M14	1	20	2.0	
Head cylinder	Nut	M7	4	14	1.4	
Cylinder	stud bolt	M7	4	17	1.7	
Air shroud (3)	Screw	M6	3	7	0.7	
Fan	Screw	M6	3	7	0.7	
Air shroud (1x3)	Screw	M6	1	2	0.2	
Oil pump assembly	Screw	M5	2	4	0.4	
Reed valve	Bolt	M6	4	11	1.1	
Air filter	Screw	M6	1	8.5	0.85	
Air duct	Screw	M6	2	6.5	0.65	
Exaust pipe/engine	Screw	M8	2	29	2.9	GT
Exhaust pipe / Cylinder	Bolt	M6	2	8.5	0.85	
Muffler protector	Bolt	M6	3	9	0.9	
Cap and pipe	Bolt	M6	3	11	1.1	GT
Exhaust Cover	Bolt	M6	3	13	1.3	GT
Crankcase 1x2	Bolt	M6	6	12	1.2	
Holder	Bolt	M6	1	7	0.7	
Crankcase cover (right cover)	Bolt	M6	6	12	1.2	
Crankcase cover (left cover)	Bolt	M6	12	12	1.2	
Drain bolt	Bolt	M8	1	18	1.8	
Plug oil	Plug oil	M14	1	3	0.3	
Idle gear plate	Screw	M6	2	8	0.8	
Self starting motor	Bolt	M6	2	13	1.3	
Cluth housing	Nut	M10	2	40	4.0	
Base magneto	Screw	M6	2	8	0.8	
C.D.I. rotor	Nut	M10	1	43	4.3	
Primary sheave	Nut	M12	1	45	4.5	
Kick crank	Bolt	M6	1	13	1.3	

CHASSIS

Model		Standard	Limit
Steering system:			
Steering bearing type		Ball bearing	***
Size of steel balls x qty:			
Upper		ø4.75 mm x 15	***
Lower		ø4.75 mm x 15	***
Lock to lock angle			
Left		45°	***
Right		45°	***
Front suspension:			
Front fork travel		80 mm	***
Optional spring		No	
Spring rate	(K1)	5.7 N/mm	***
Stroke	(K1)	0 ~ 80 mm	***
Rear suspension:			
Shock absorber travel		60 mm	***
Spring free length		234 mm	***
Spring fitting length		199.5 mm	***
Spring rate	(K1)	28 N/mm	***
	(K2)	35 N/mm	***
Stroke	(K1)	0 ~ 92 mm	***
	(K2)	92 ~ 115 mm	***
Optional spring		No	
Wheels:			
Front wheel type		Cast wheel	
Rear wheel type		Cast wheel	
Front wheel size/Material		MT 3.00 x13 / Aluminium	
Rear wheel size/Material		MT 3.50 x 13 / Aluminium	
Rim runout limit:			
Front	Radial	***	1 mm
	Lateral	***	1 mm
Rear	Radial	***	1 mm
	Lateral	***	1 mm

Model	Standard	Limit
Front disk brake:		
Type	Single disc	***
Diameter and thickness	190.0 x 3.5 mm	***
Pad thickness	4.5 mm	2 mm
Master cylinder inside diameter	11 mm	***
Caliper cylinder inside diameter	30 mm	***
Brake fluid type	DOT #3 or DOT#4	***
Rear drum brake:		
Type	Leading, trailing	***
Drum inside diameter	130 mm	130.5 mm
Lining thickness	4 mm	2 mm
Spring free length	54 mm	***
Brake lever freeplay:		
Front brake lever free play	10 ~ 20 mm	***
Rear brake lever free play	10 ~ 20 mm	***

TIGHTENING TORQUES

CHASSIS

Part to be tightened		Thread size	Tightening torque		Remarks
			Nm	m.kg	
Frame with engine bracket		M10	42	4.2	
Engine bracket with engine		M10	50	5.0	
Reinforcement tail		M8	12.5	1.25	
Rear schock absorber with frame (top)		M10	31.5	3.15	
Rear schock absorber with engine (bottom)		M8	17.5	1.75	
Handle with steering shaft		M10	60	6.0	
Steering nut (securing nut)	Upper		75	7.5	
	Center		-	-	
	Lower		38	3.8	1st tightening
			22	2.2	2nd tightening
Fuel tank		M6	6.5	0.65	
Seat lock assy'		M6	9.5	0.95	
Box		M6	8	0.8	
Cover tail / Reinforcement tail		M6	6	0.6	
Fuel tank / Fuel cock		-	2.5	0.25	
Handle seat / Reinforcement tail		M6	3.5	0.35	
Front disk brake		M10	23	2.3	
Front caliper		M10	23	2.3	
Lever camshaft		M6	13.5	1.35	
Front wheel shaft		M10	35	3.5	
Rear wheel shaft		M14	125	12.5	
Wheel / Hub		M10	47	4.7	
Guard flap		M6	8	0.8	
Oil tank		M6	5	0.5	
Leg shield / Frame		M6	4	0.4	
Footrest board / Frame		M6	4	0.4	
Fuel tank		M6	6.5	0.65	

Part to be tightened	Thread size	Tightening torque		Remarks
		Nm	m.kg	
Screws tapping in plastic	Ø5	3.2	0.32	
Screws tapping in clip	Ø5	2.2	0.22	

ELECTRICAL

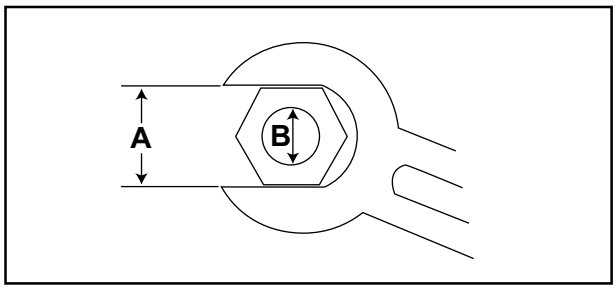
Model	Standard	Limit
Voltage:	12 V	***
Ignition system:		
Ignition timing(B.T.D.C.)	14° at 5000 r/min	***
Ignition timing type	Constant	***
CDI:		
Model/Manufacturer	4VP / YAMAHA	
Pickup coil resistance (color)	400 ~ 600 Ω at 20°C (WR/WL) (White/Red-Black)	***
Source coil resistance (color)	640 ~ 960 Ω at 20°C (BR/GW) (Black/Red-Black)	***
Ignition coil:		
Model/Manufacturer	2JN / MORYAMA	***
Minimum spark length	***	***
Primary coil resistance	0.32 ~ 0.48 Ω at 20°C	***
Secondary coil resistance	5.68 ~ 8.52 kΩ at 20°C	***
Spark plug cap:		
Type	Resin	
Resistance	5 kΩ at 20°C	***
Charging system / Type	Flywheel magneto	
CDI Magneto:		
Model / Manufacturer	4VP / YAMAHA	***
Charging coil resistance (color)	0.48 ~ 0,72 Ω at 20°C (White-Black)	***
Lighting coil resistance (color)	0.40 ~ 0,60 Ω at 20°C (Yellow/Red-Black)	***
Voltage Regulator / Rectifier:		
Type	Semi-conductor, Short-circuit type	
Model/Manufacturer	DUCATI	
No load regulated voltage	13 ~ 14 V	***
Capacity	8A	***
Withstand voltage	600v	***

Model	Standard	Limit
Battery :		
Specific gravity	1.280	***
Starter motor:		
Model / Type	MORYAMA	
Output	0.14 kW	***
Armature coil resistance	0.06 ~ 0.08 Ω at 20°C	***
Brush length	3.9 mm	0.9 mm
Brush spring pressure	563 ~ 844 g	***
Commutator diameter	15.8 mm	14.8 mm
Mica undercut (depth)	1.15 mm	***
Starter relay:		
Model/Manufacturer	G8MS / OMRON	
Amperage rating	20 A	***
Coil resistance	54 ~ 66 Ω at 20°C	***
Horn:		
Type/Quantity	Plane type/1pc.	
Model/Manufacturer	GF-12 / NIKKO or TR9 / TRANSVAL	
Maximum amperage	2.5 A	***
Flasher relay:		
Type	Condenser type	
Self cancelling device	No	
Flasher frequency	80 ~ 160 cycles/min	***
Wattage	10W x 2	***
Circuit breaker:		
Type	Fuse	
Amperage for individual circuit x Quantity	7.5 A x 1	***
Fuel sender unit:		
Model/Manufacturer	MONT. EL.	
Resistance (Full)	1.5 ~ 7.5 Ω at 20°C	***
(Empty)	90 ~ 100 Ω at 20°C	***

EAS00029

GENERAL TIGHTENING TORQUE SPECIFICATIONS

This chart specifies tightening torques for standard fasteners with a standard ISO thread pitch. Tightening torque specifications for special components or assemblies are provided for each chapter of this manual. To avoid warpage, tighten multi-fastener assemblies in a crisscross pattern and progressive stages until the specified tightening torque is reached. Unless otherwise specified, tightening torque specifications require clean, dry threads. Components should be at room temperature.



A: Width across flats
B: Thread diameter

A (Nut)	B (Bolt)	General torque specifications	
		Nm	m.kg
10 mm	6 mm	60	0.6
12 mm	8 mm	15	1.5
14 mm	10 mm	30	3.0
17 mm	12 mm	55	5.5
19 mm	14 mm	85	8.5
22 mm	16 mm	130	13.0

EAS00031

LUBRICATION POINTS AND LUBRICANT TYPES

ENGINE

Lubrication point	Lubricant type
Oil seal lips	LS
O-ring	LS
Crankshaft bearings	E
Needle bearings (connecting rod)	E
Main axle bearings	G
Drive axle bearings	LS
Secondary sheave axle bearing	G
Piston rings, piston pin and piston	E
Kick pinion gear	LS
Kick shaft	LS
Starter idle gear	E
Starter clutch pin	M
Oil pump driven gear and drive gear	LS
Secondary sliding sheave cam groove	BEL-RAY® assembly lube
Secondary fixed sheave inside diameter	BEL-RAY® assembly lube
Crankcase surface	Yamaha N°1215

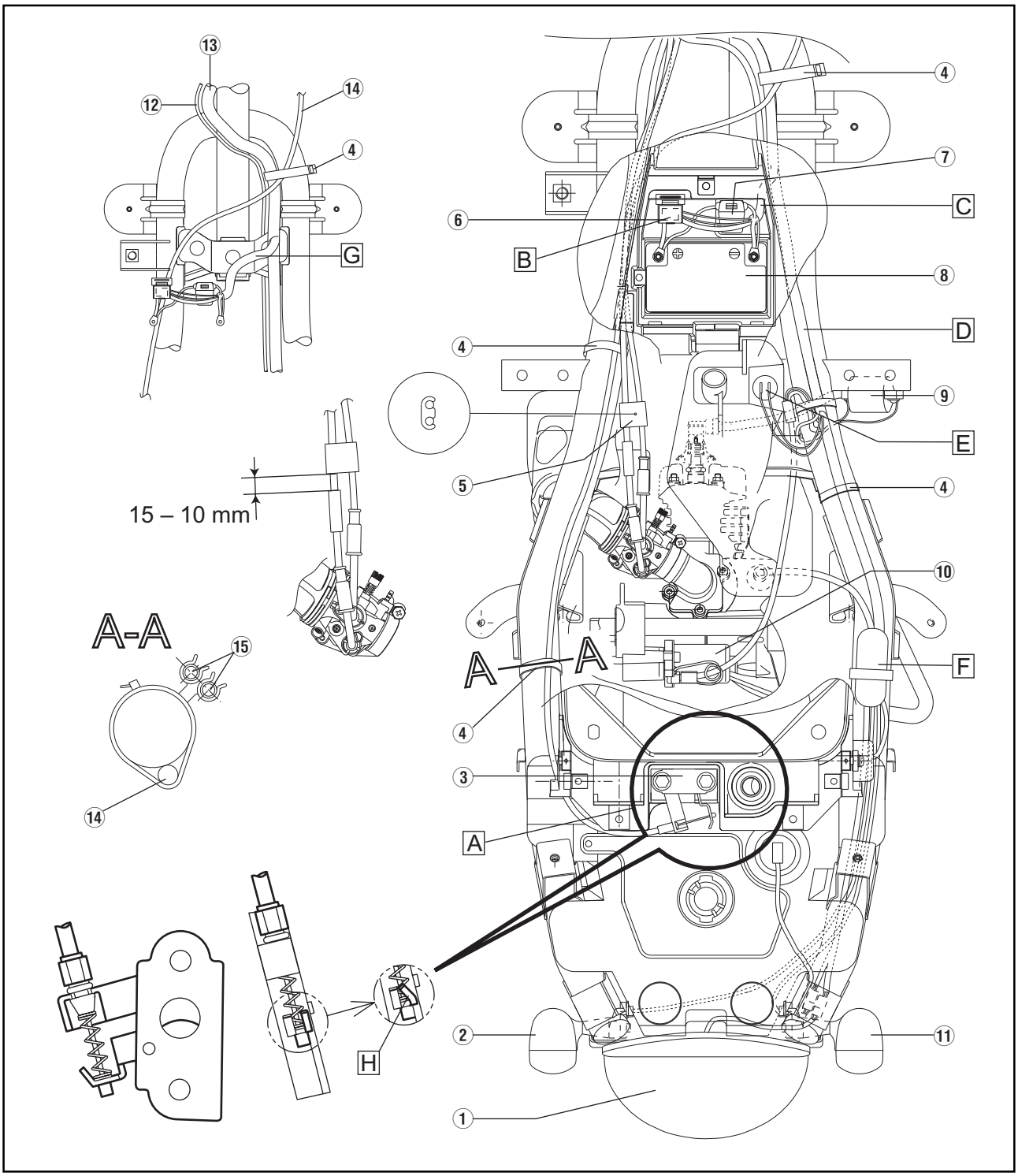
LUBRICATION POINT AND GRADE OF LUBRICANT

EAS00032
CHASSIS

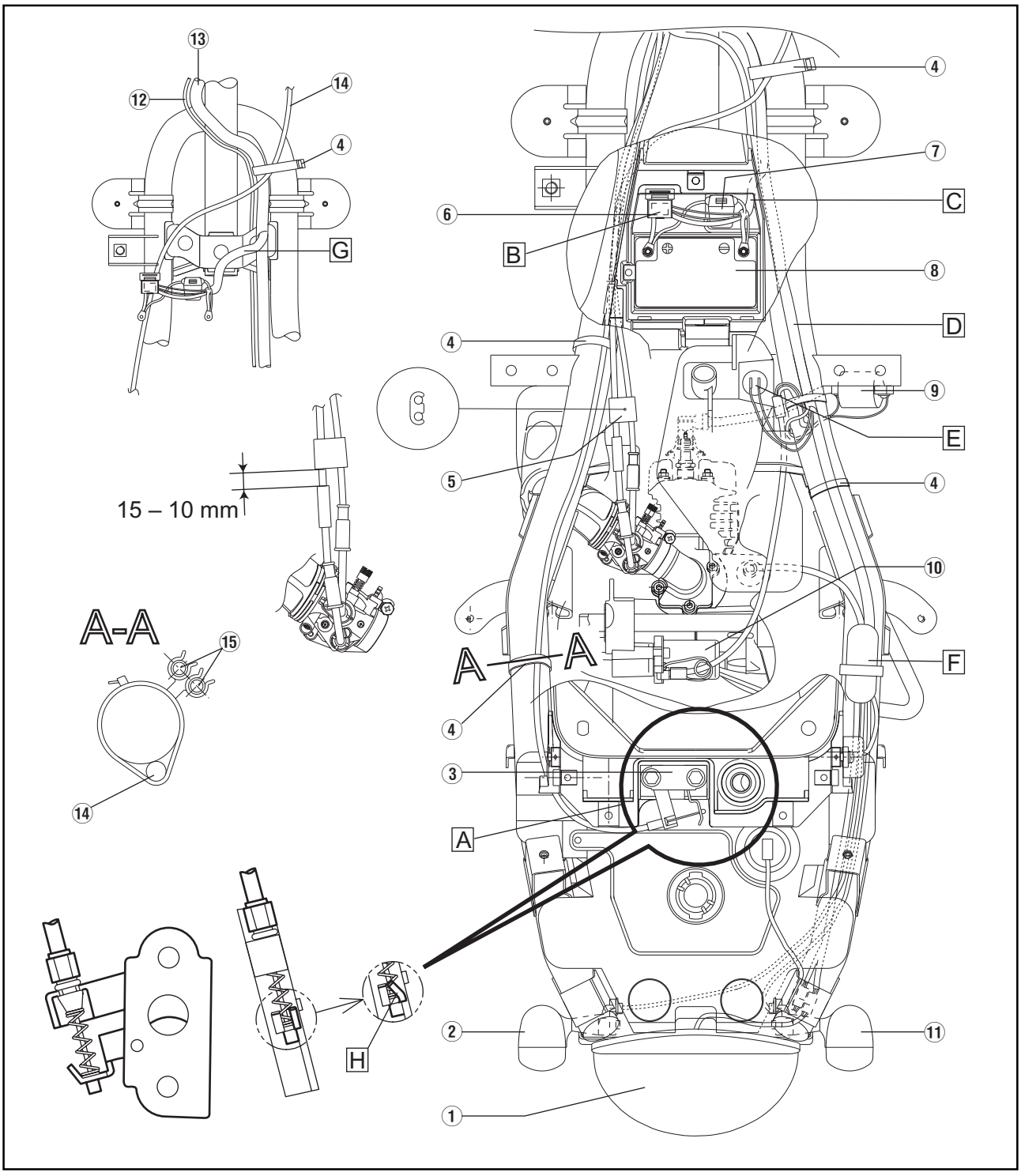
Lubrication point	Lubricant type
Front wheel oil seal (right/left)	LS
Rear wheel oil seal	LS
Steering bearing and bearing race (upper/lower)	LS
Throttle grip inner surface	LS
Lever pivots and cable end	LS
Oil seal lips (front wheel)	LS
Bearing (front wheel)	LS
Speedometer gear	LS
Center stand pivot	LS

EAS00035
CABLE ROUTING

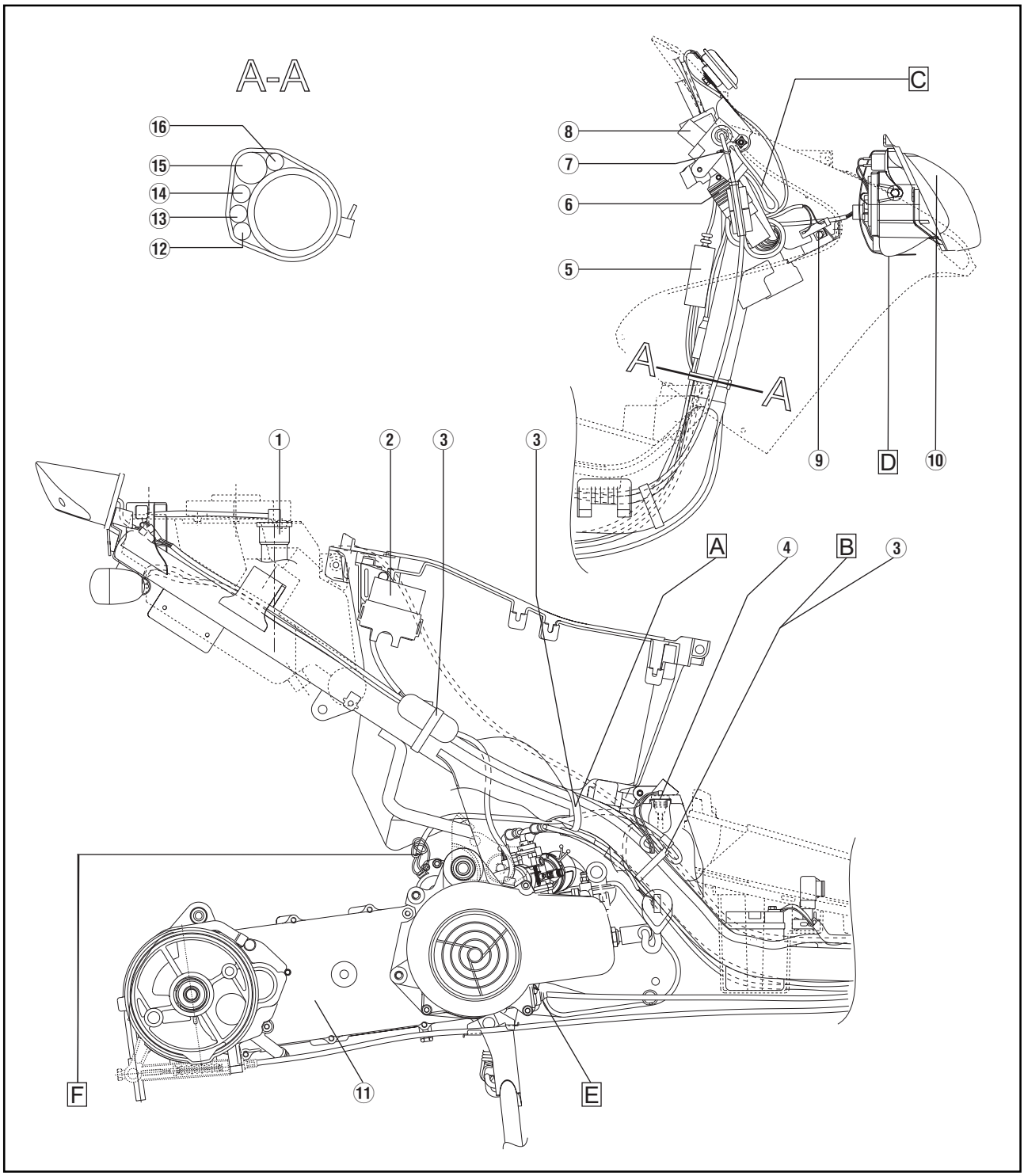
① Taillight
② Rear left flasher light
③ Seat lock assy'
④ Band switch
⑤ Clip
⑥ Starter relay
⑦ Fuse
⑧ Battery assy'
⑨ Ignition coil assy'
⑩ Starter motor
⑪ Rear right flasher light
⑫ Oil pump wire
⑬ Wire harness
⑭ Seat lock cable
⑮ Fuel and sunction pipe



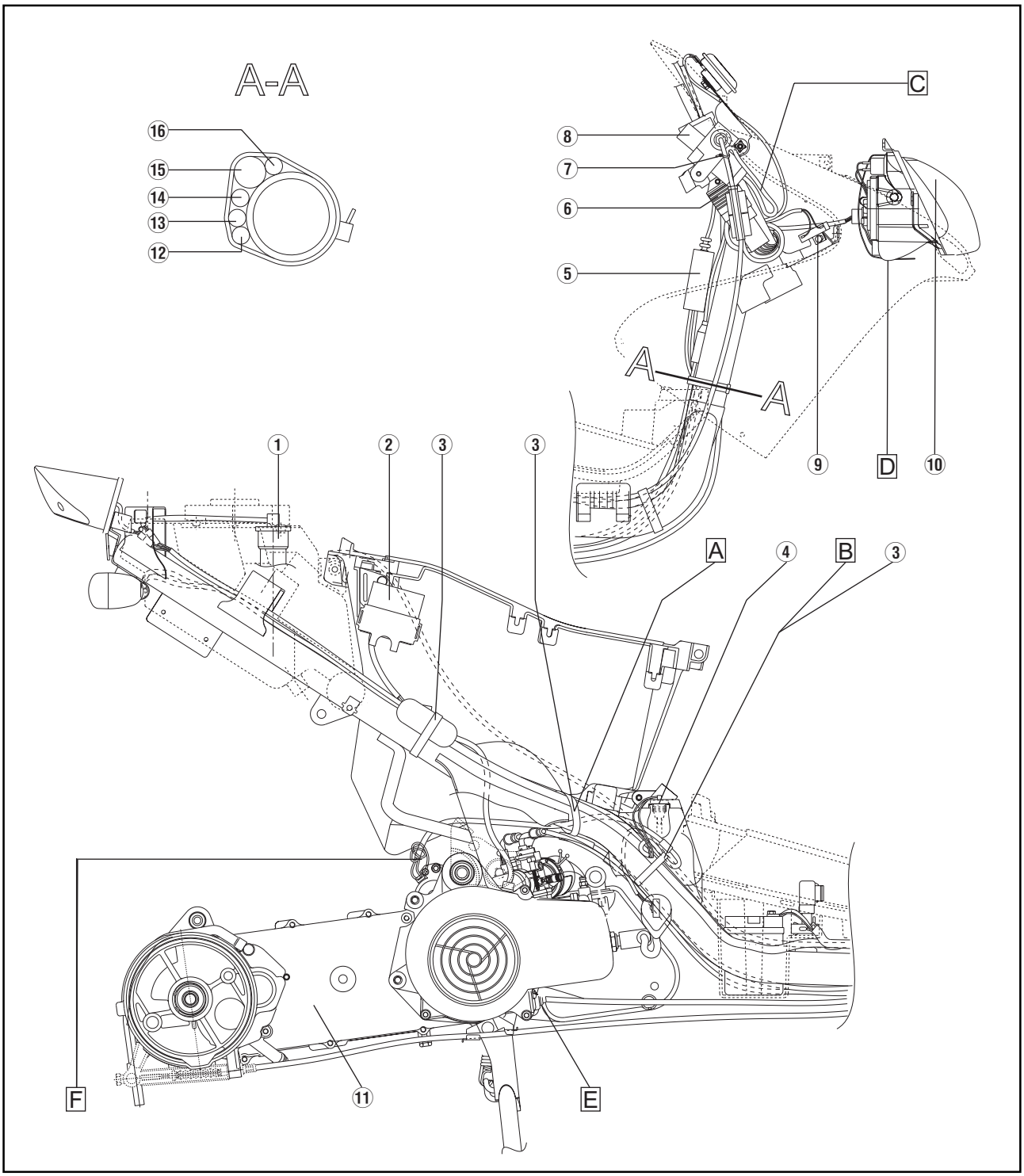
A Untight the seat lock plate to give to the seat lock cable more free play. Tight the seat lock cable at 1 1/2 turn.
B Fix on the footrest board.
C Pass the wire harness through the footrest board.
D Push the wire harness to the inside.
E Place leads backwards.
F Group connections all together.
G Place the wire harness in the middle of the engine bracket.
H Tight hook end with pliers to avoid the cable way out.



① Fuel sender
② C.D.I. unit
③ Band switch
④ Oil level sender
⑤ Wire cylinder assy'
⑥ Rectifier / Regulator
⑦ Band switch cordon
⑧ Main switch
⑨ Resistor
⑩ Headlight
⑪ Engine assy'
⑫ Starter wire
⑬ Throttle cable
⑭ Oil pump wire
⑮ Wire harness
⑯ Rear brake cable

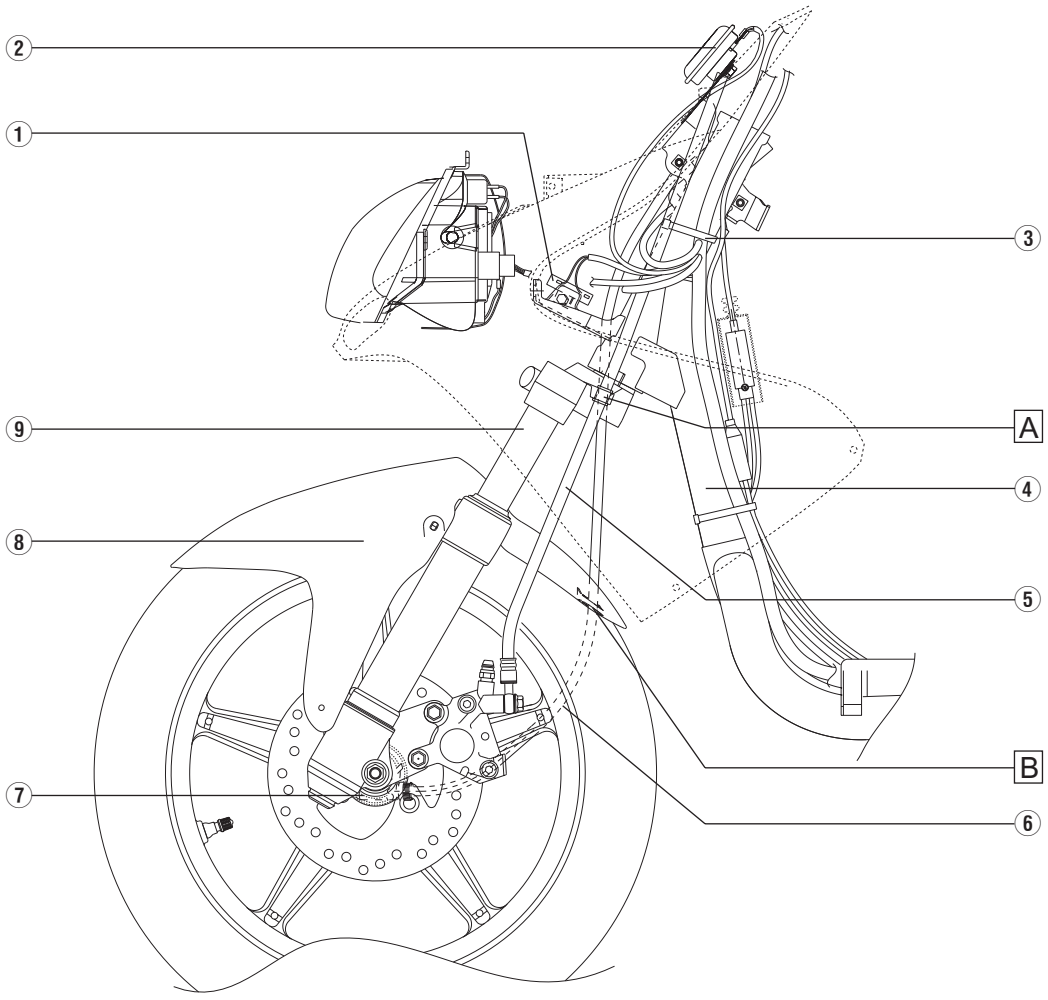


A Fix the wire harness, starter motor wire and the flywheel wire all together.
B Fix the wire harness.
C Pass the wire harness between the regulator and the steering head pipe.
D Secure the right position of the headlight protection.
E Adjust the oil pump.
F Turn one round the ground wire around the starter wire.

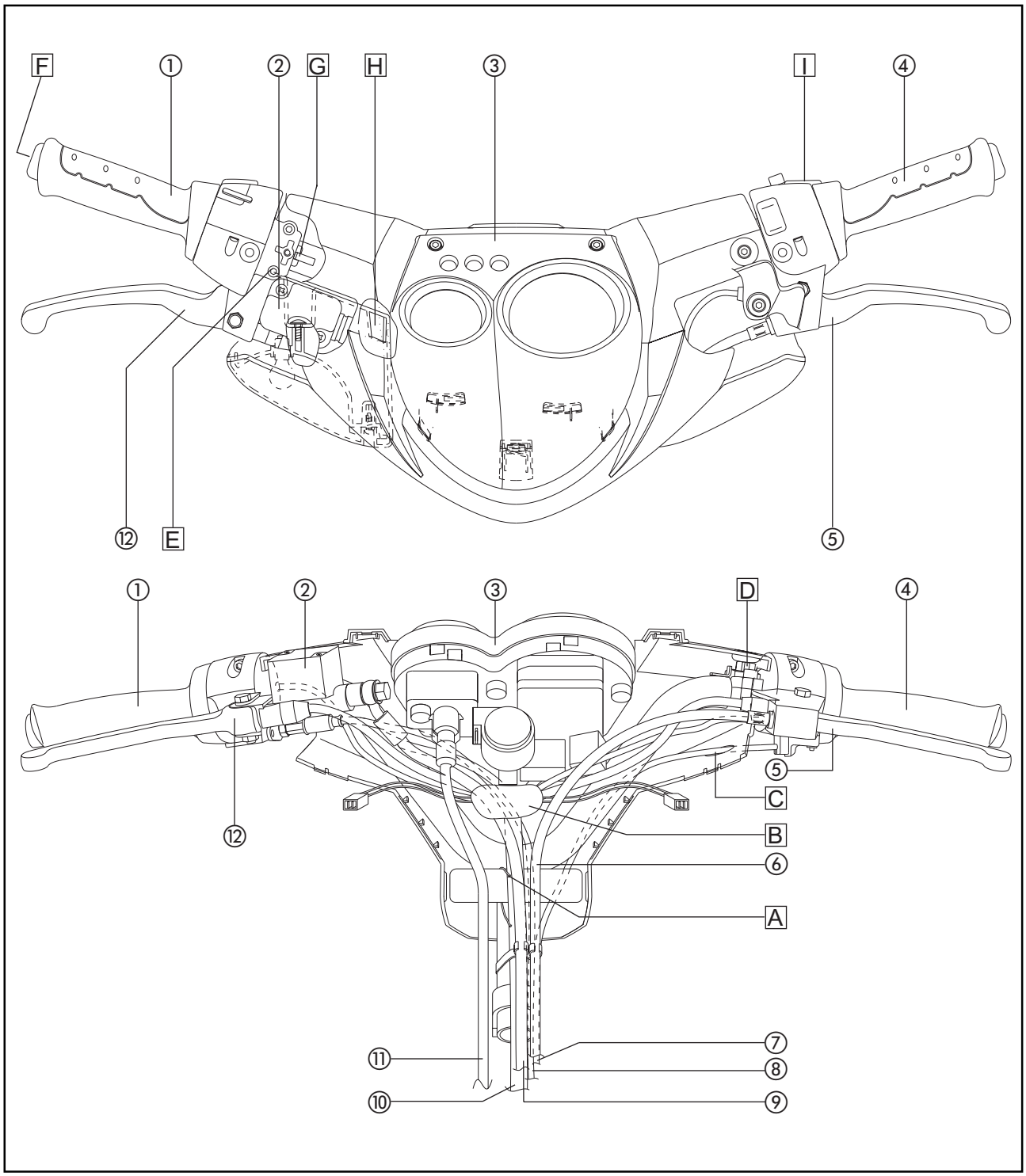


① Resistor assy'
② Horn
③ Band switch
④ Frame
⑤ Front brake hose
⑥ Speedometer cable
⑦ Gear unit assy'
⑧ Front mudguard
⑨ Front fork assy'

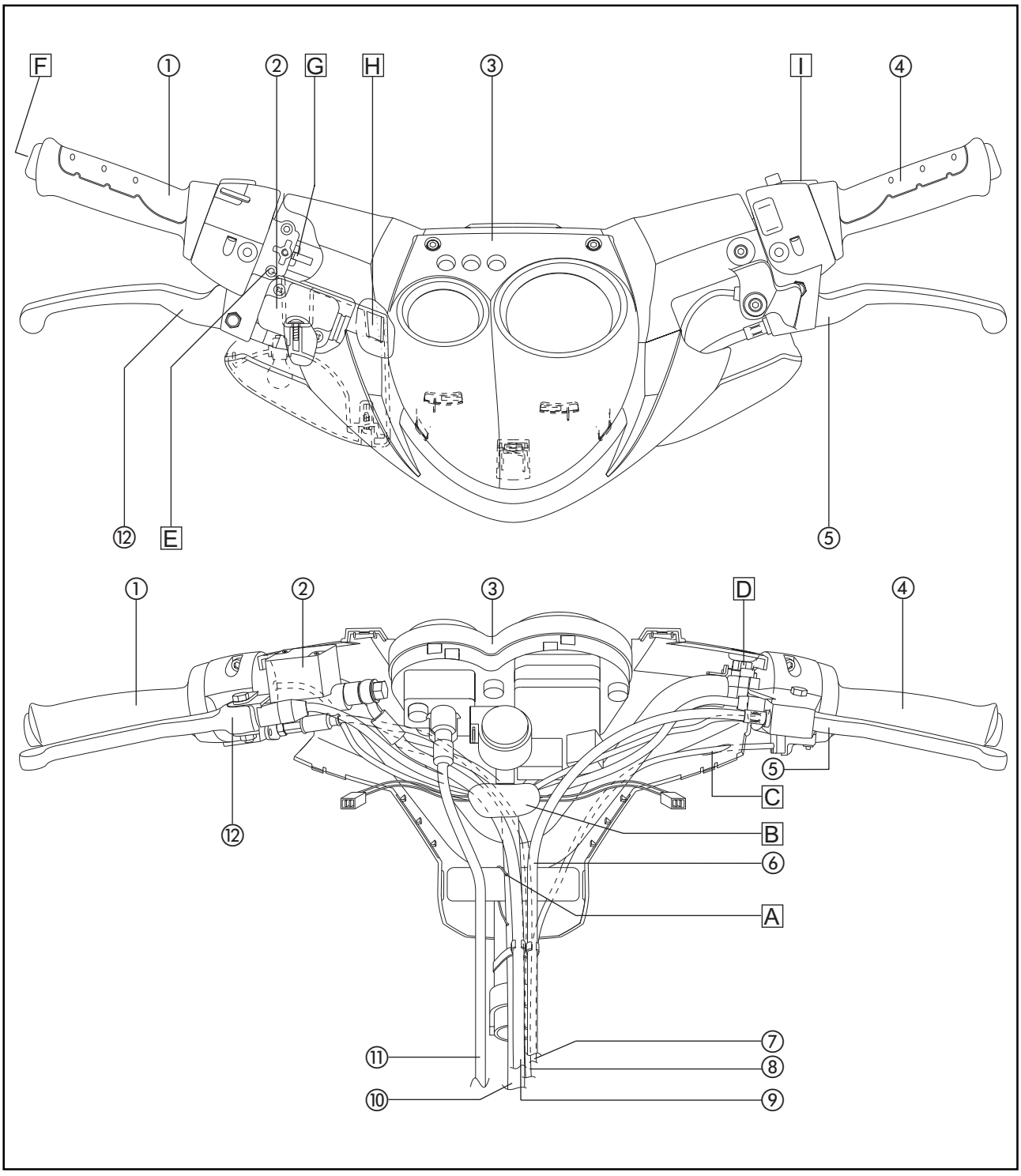
A Install the front brake hose on the front fork assy' clip.
B Pass the speedometer cable through the front mudguard bracket.



① Right hand grip
② Master cylinder
③ Speedometer assy'
④ Left hand grip
⑤ Rear brake lever
⑥ Rear brake cable
⑦ Starter wire
⑧ Stop switch wire
⑨ Front brake hose
⑩ Wire harness
⑪ Speedometer cable
⑫ Front brake lever

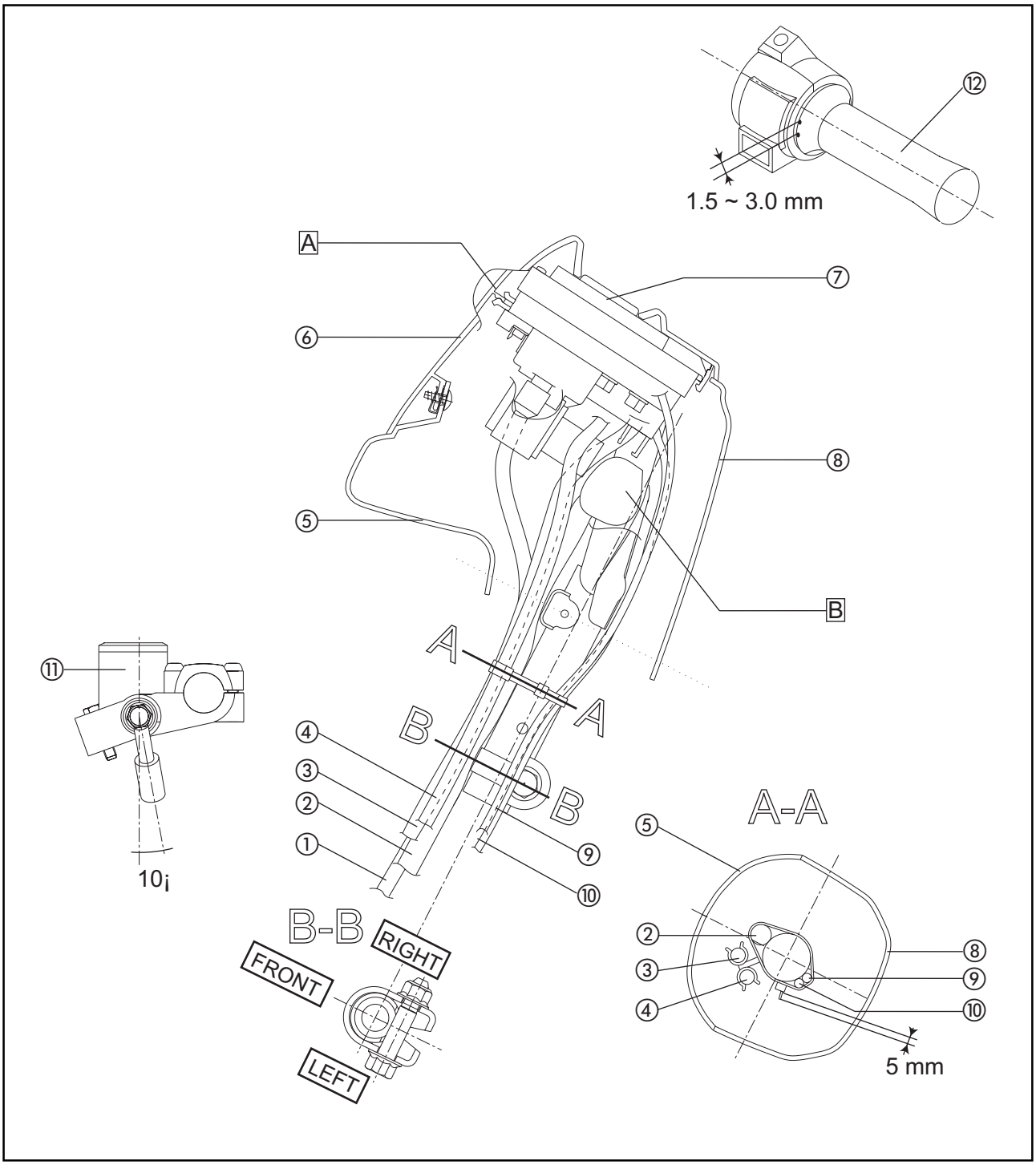


A Fix the wire harness on the frame bracket.
B Group all connection in this area.
C Pass the starter cable through the hole.
D Tight this bolt first.
E Tight this bolt first.
F Stop the cap on the handlebar end. Tight at 7 Nm (0.7 m.kg).
G Stop the grip on the handlebar projection.
H Pass the flasher light wire through the hole.
I Position the grip in regards of this switch.



① Speedometer cable
② Wire harness
③ Front brake hose
④ Rear brake cable
⑤ Front handlebar cover
⑥ Speedometer cover
⑦ Speedometer
⑧ Rear handlebar cover
⑨ Handlebar switch wire
⑩ Starter wire
⑪ Master cylinder
⑫ Throttle grip

A Secure the installation of the clip.
B Group all connections in this area.



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CHAPTER 3.
PERIODIC CHECKS AND ADJUSTMENTS

PERIODIC MAINTENANCE AND LUBRICATION 3-1

COVERS 3-3
SEAT AND SIDE COVERS 3-3
BOX, LOWER SIDE COVERS AND MUDGUARD 3-4
FRAME REINFORCEMENT, FUEL TANK AND REAR UNDER COVER 3-5
FRONT COVERS 3-6
HANDLEBAR COVERS 3-7
BATTERY COVER AND LOWER COVER 3-8
INNER PANEL AND FOOTREST BOARD 3-9

ENGINE 3-11
ADJUSTING THE ENGINE IDLING SPEED 3-11
ADJUSTING THE THROTTLE CABLE FREE PLAY 3-12
CHECKING THE SPARK PLUG 3-13
CHECKING THE ENGINE OIL LEVEL 3-15
CHANGING THE TRANSMISSION OIL 3-16
AUTOLUBE PUMP AIR BLEEDING 3-16
CLEANING THE AIR FILTER ELEMENT 3-17
CHECKING THE EXHAUST SYSTEM 3-18

CHASSIS 3-19
ADJUSTING THE FRONT BRAKE 3-19
ADJUSTING THE REAR BRAKE 3-19
CHECKING THE BRAKE FLUID LEVEL 3-20
CHECKING THE FRONT BRAKE PADS 3-21
CHECKING THE BRAKE SHOES 3-21
BLEEDING THE HYDRAULIC BRAKE SYSTEM 3-21
CHECKING AND ADJUSTING THE STEERING HEAD 3-22
CHECKING THE FRONT FORK 3-24
CHECKING THE TIRES 3-25
CHECKING THE WHEELS 3-27
CHECKING AND LUBRICATING THE CABLES 3-27
LUBRICATING THE CENTERSTAND 3-28
LUBRICATING THE REAR SUSPENSION 3-28

ELECTRICAL SYSTEM 3-29
CHECKING THE BATTERY 3-29
CHECKING THE FUSE 3-32
REPLACING THE HEADLIGHT BULB 3-33
ADJUSTING THE HEADLIGHT BEAM 3-34

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PERIODIC CHECKS AND ADJUSTMENTS

INTRODUCTION

This chapter includes all information necessary to perform recommended checks and adjustments. If followed, these preventive maintenance procedures will ensure more reliable vehicle operation, a longer service life and reduce the need for costly overhaul work. This information applies to vehicles already in service as well as to new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

PERIODIC MAINTENANCE AND LUBRICATION

N°		ITEM	CHECKS AND MAINTENANCE JOBS	INITIAL (1,000 km)	6,000 km or 6 months	Annual check
1	*	Fuel line	• Check fuel hoses and vacuum hose for cracks and damage. • Replace if necessary.		√	√
2		Spark plug	• Check condition. • Clean, regap or replace if necessary.		√	
3		Air filter	• Clean or replace if necessary.		√	
4	*	Battery	• Check electrolyte level and specific gravity. • Correct or recharge if necessary.		√	√
5	*	Front brake (disk)	• Check operation, fluid level and vehicule for fluid leakage. (see NOTE on page 3-2) • Correct accordingly. • Replace brake pads if necessary.	√	√	√
6	*	Rear brake (drum)	• Check operation. • Adjust brake lever freeplay and replace brake shoes if necessary.	√	√	√
7	*	Brake hose	• Check for cracks and damage. • Replace if necessary.		√	√
8	*	Wheels	• Check balance, runout and for damage. • Rebalance or replace if necessary.		√	
9	*	Tires	• Check tread depth and damage. • Replace if necessary. • Check air pressure. • Correct if necessary.		√	
10	*	Wheel bearings	• Check bearing for looseness or damage. • Replace if necessary.		√	
11	*	Steering bearings	• Check bearing play and steering for roughness. • Correct accordingly.	√	√	
			• Lubricate with lithium soap base grease.	Every 12,000 km		
12		Chassis fasteners	• Make sure that all nuts, bolts and screws are properly tightened. • Tighten if necessary.		√	√
13		Centerstand	• Check operation. • Lubricate and repair if necessary.		√	√
14	*	Front fork	• Check operation and for oil leakage. • Replace if necessary.		√	
15	*	Rear shock absorber assembly	• Check operation and shock absorber for oil leakage. • Replace shock absorber assembly if necessary.		√	
16	*	Carburetor	• Check engine idling speed and starter operation. • Adjust if necessary.	√	√	√
17	*	Autolube pump	• Check operation. • Correct if necessary. • Bleed if necessary.	√	√	√
18		Transmission oil	• Check oil level and vehicle for oil leakage		√	
			• Change oil.	√	Every 12,000 km	

N°		ITEM	CHECKS AND MAINTENANCE JOBS	INITIAL (1,000 km)	6,000 km or 6 months	Annual check
19	*	V-belt	• Check for wear and damage.		√	
			• Replace.	Every 20,000 km		
20	*	Front and rear bake switches	• Check operation. • Correct accordingly.	√	√	√
21		Moving parts and cables	• Lubricate if necessary.		√	√
22	*	Lights, signals and switches	• Check operation. • Correct if necessary. • Adjust headlight beam if necessary.	√	√	√

Items maked with an asterisk (*) require special tools, data and technical skills for servicing. Take the scooter to a Yamaha or MBK dealer when servicing these items.

NOTE:

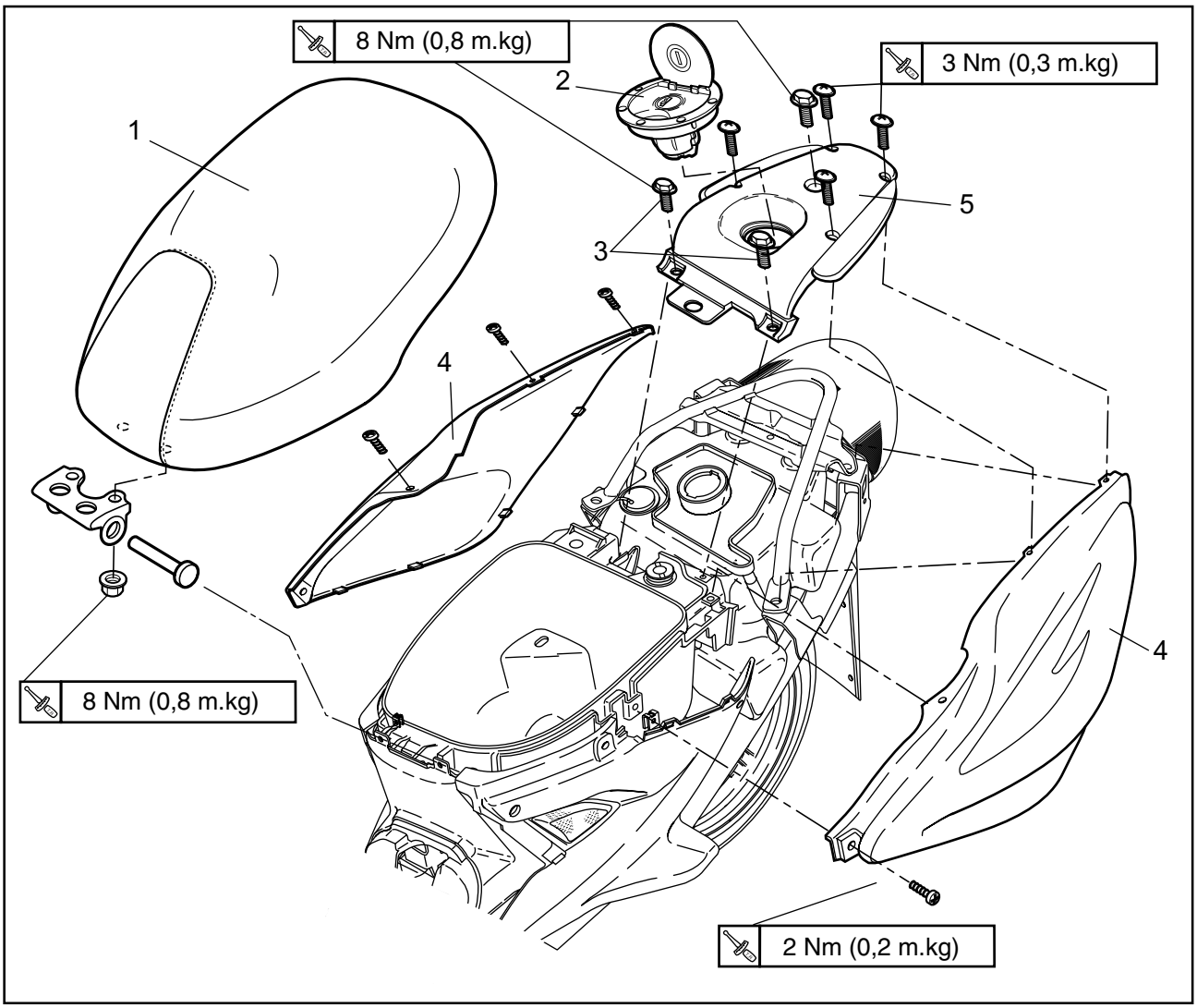
• The air filter needs more frequent service if you are riding in unusually wet or dusty areas.

• Brake fluid replacement:

  • When disassembling the master cylinder or caliper cylinder, replace the brake fluid. Normally check the brake fluid level and add fluid as required.

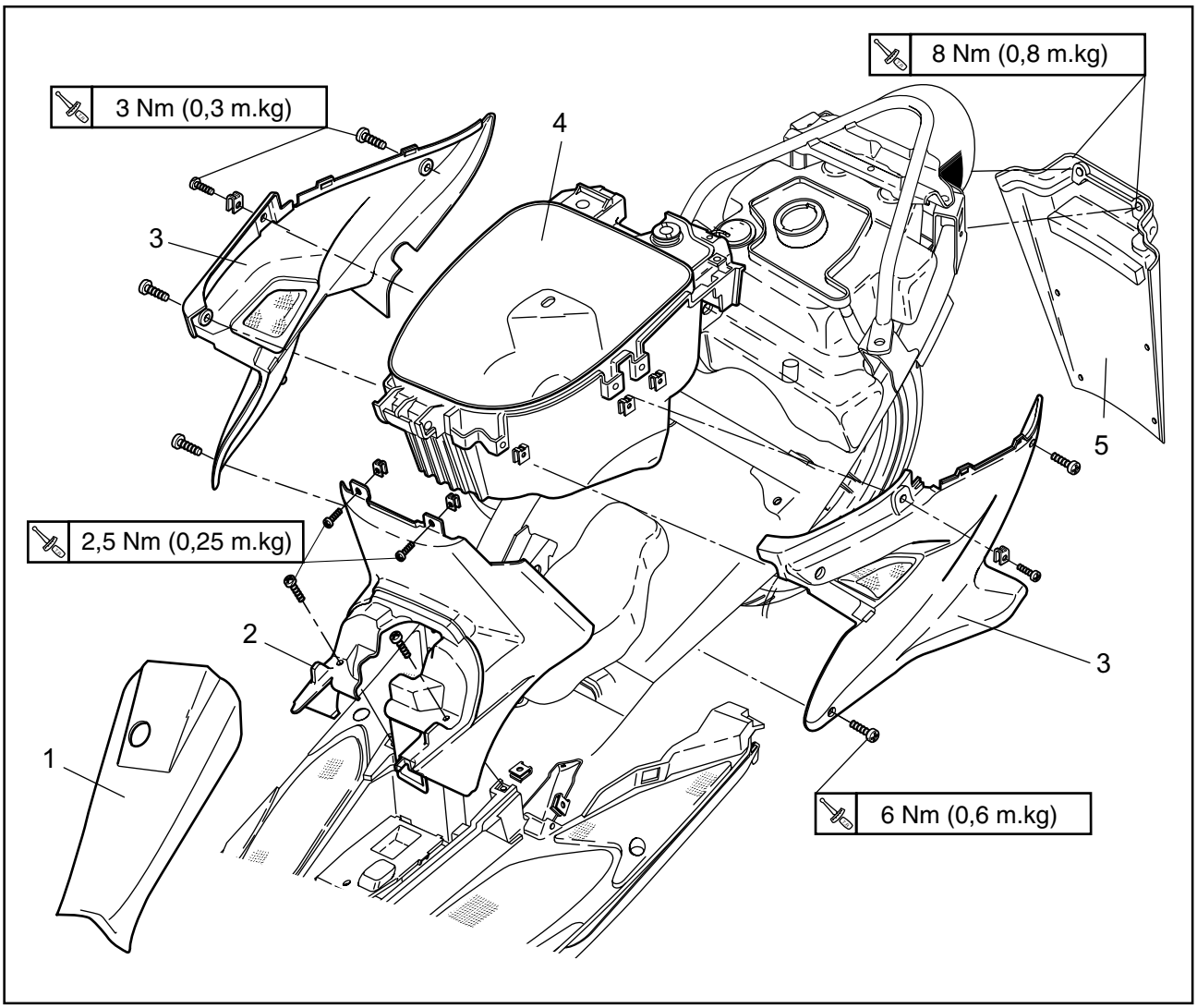
  • Replace the brake hoses every four years, or when cracked or damaged.

SEAT AND SIDE COVERS



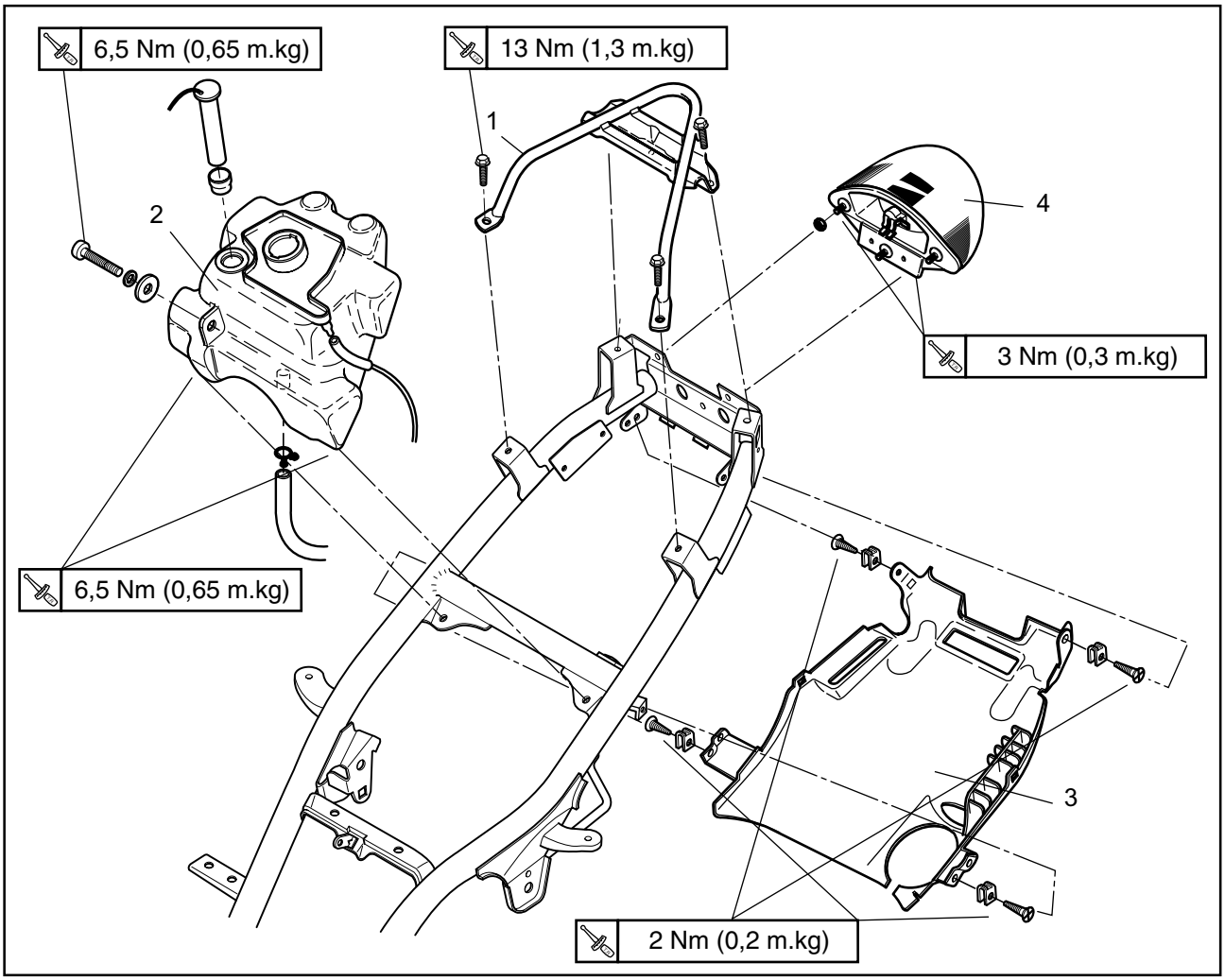
Order	Job/Part	Q'ty	Remarks
	Removing the seat and side covers		Remove the parts in the order listed.
I	Remove:		
1	Seat	1	
2	Fuel tank cap	1	
3	Rear seat screws and strap	2	
4	Side covers (left and right)	2	**CAUTION:** **When removing the cover, be careful to not damage the mounting clips.**
5	Rear seat	1	
			For installation, reverse the removal procedure.

BOX, LOWER SIDE COVERS AND MUDGUARD



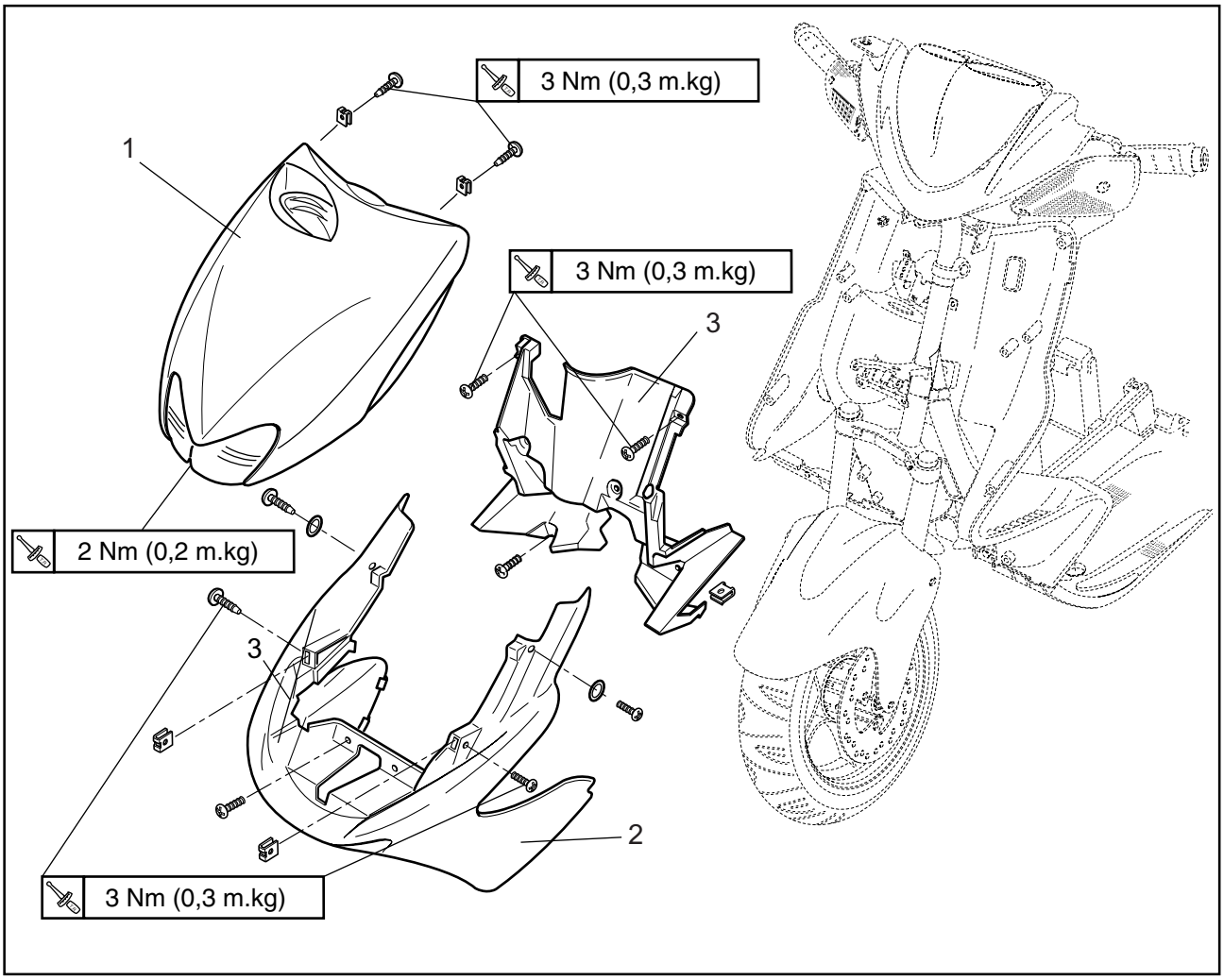
Order	Job/Part	Q'ty	Remarks
	Removing the box, lower side covers and mudguard		Remove the parts in the order listed.
I	Remove:		
1	Glove compartment cover	1	
2	Oil cover	1	
3	Lower side covers (left and right)	2	**CAUTION:** **When removing the cover, be careful to not damage the mounting clips.**
4	Box	1	
5	Rear mudguard	1	
			For installation, reverse the removal procedure.

FRAME REINFORCEMENT, FUEL TANK AND REAR UNDER COVER



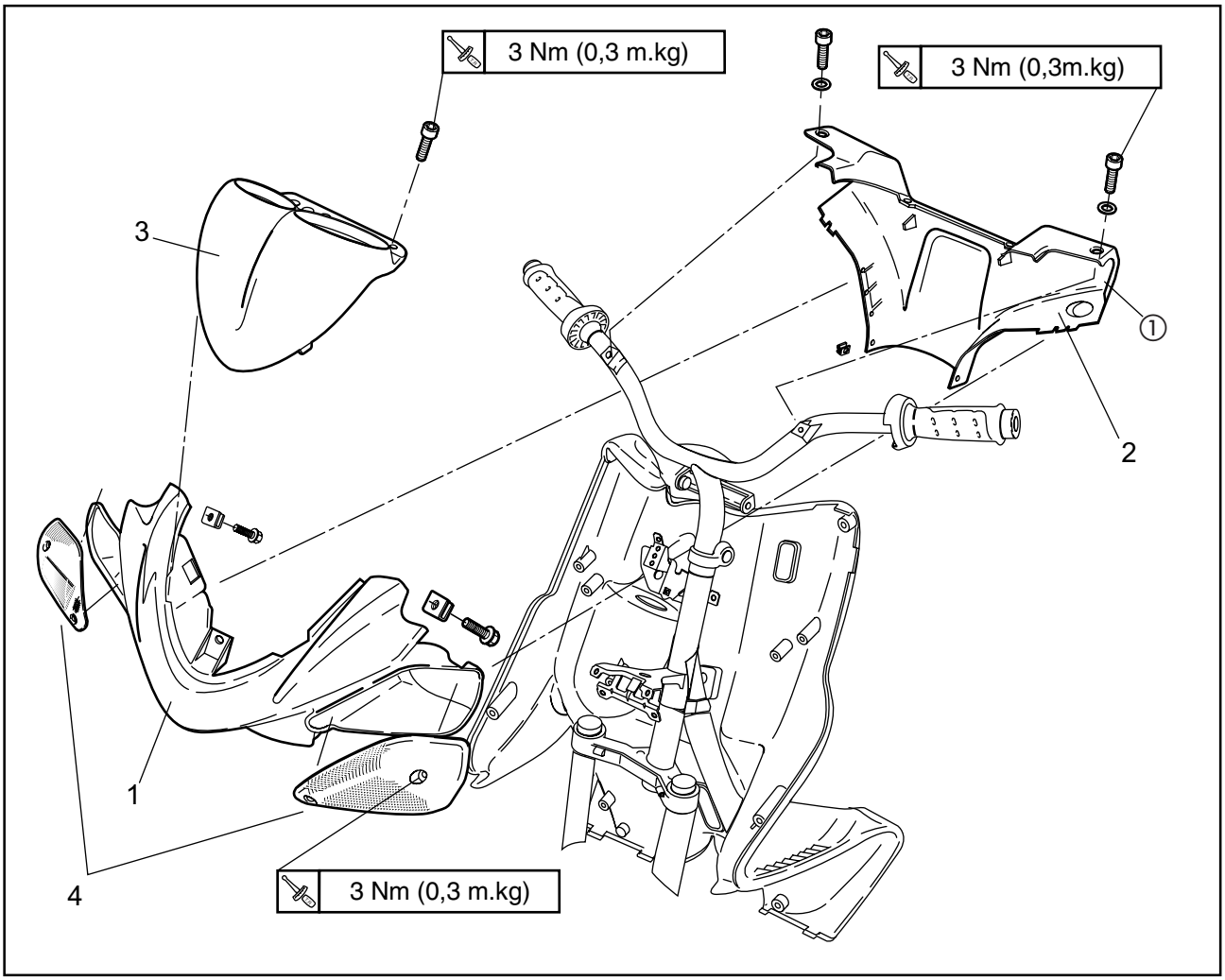
Order	Job/Part	Q'ty	Remarks
	Removing the frame reinforcement, fuel tank and rear under cover.		Remove the parts in the order listed.
	Rear side covers		Refer to "BOX,SIDE COVERS AND MUD-GUARD" section.
	Seat		Refer to "SEAT AND SIDE COVERS" section.
I	Remove:		
1	Frame reinforcement	1	
2	Fuel tank	1	
3	Rear under cover	1	**CAUTION:** **When removing the cover, be careful to not damage the mounting clips.**
4	Rear light	1	
			For installation, reverse the removal procedure.

FRONT COVERS



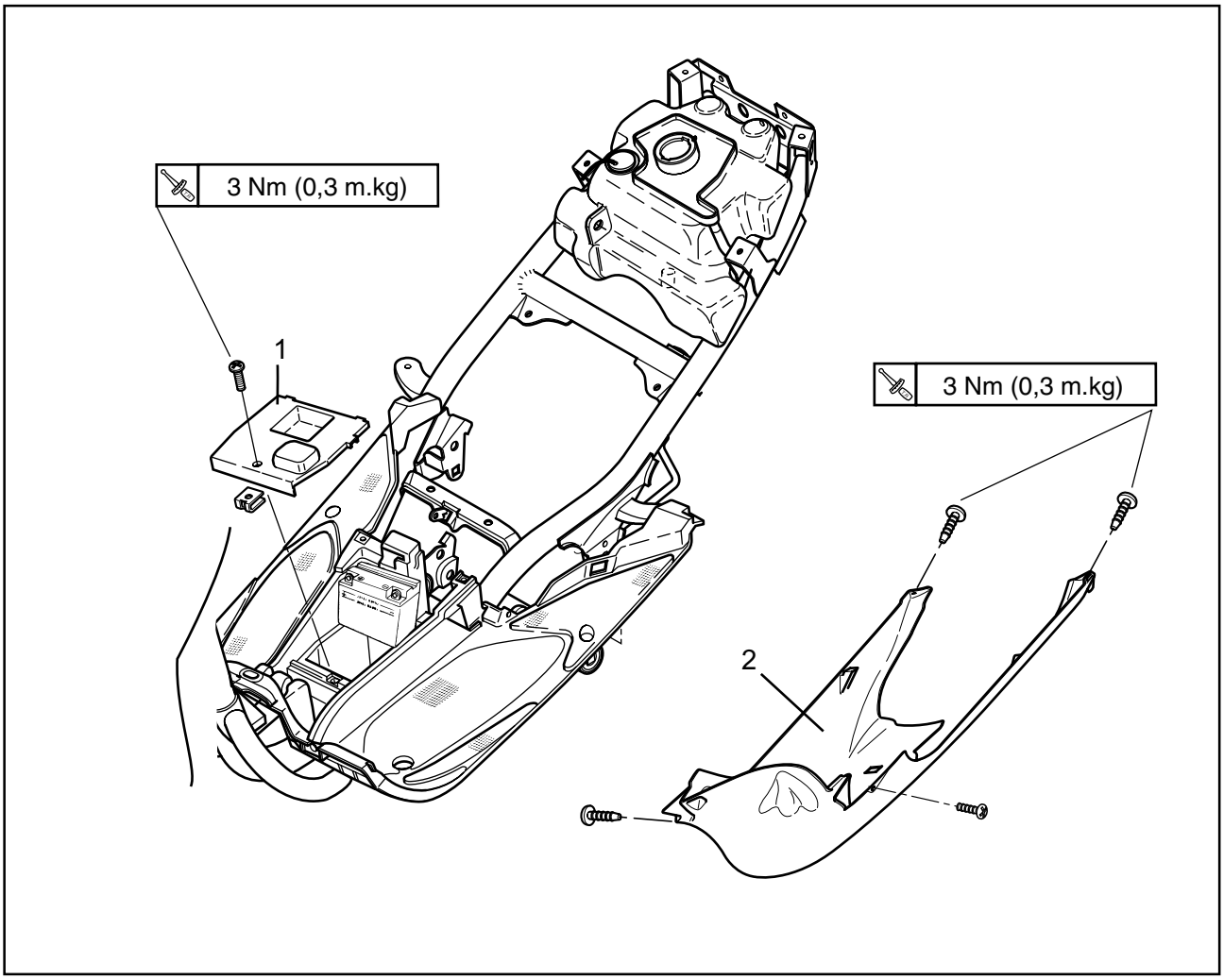
Order	Job/Part	Q'ty	Remarks
	Removing the front covers		Remove the parts in the order listed.
I	Disconnect:		
	Headlight lead	1	
II	Remove:		
1	Front cover and headlight	1	
2	Front fender	1	
3	Front inner panel	1	**CAUTION:**
			When removing the cover, be careful to not damage the mounting clips.
			For installation, reverse the removal procedure.

HANDLEBAR COVERS



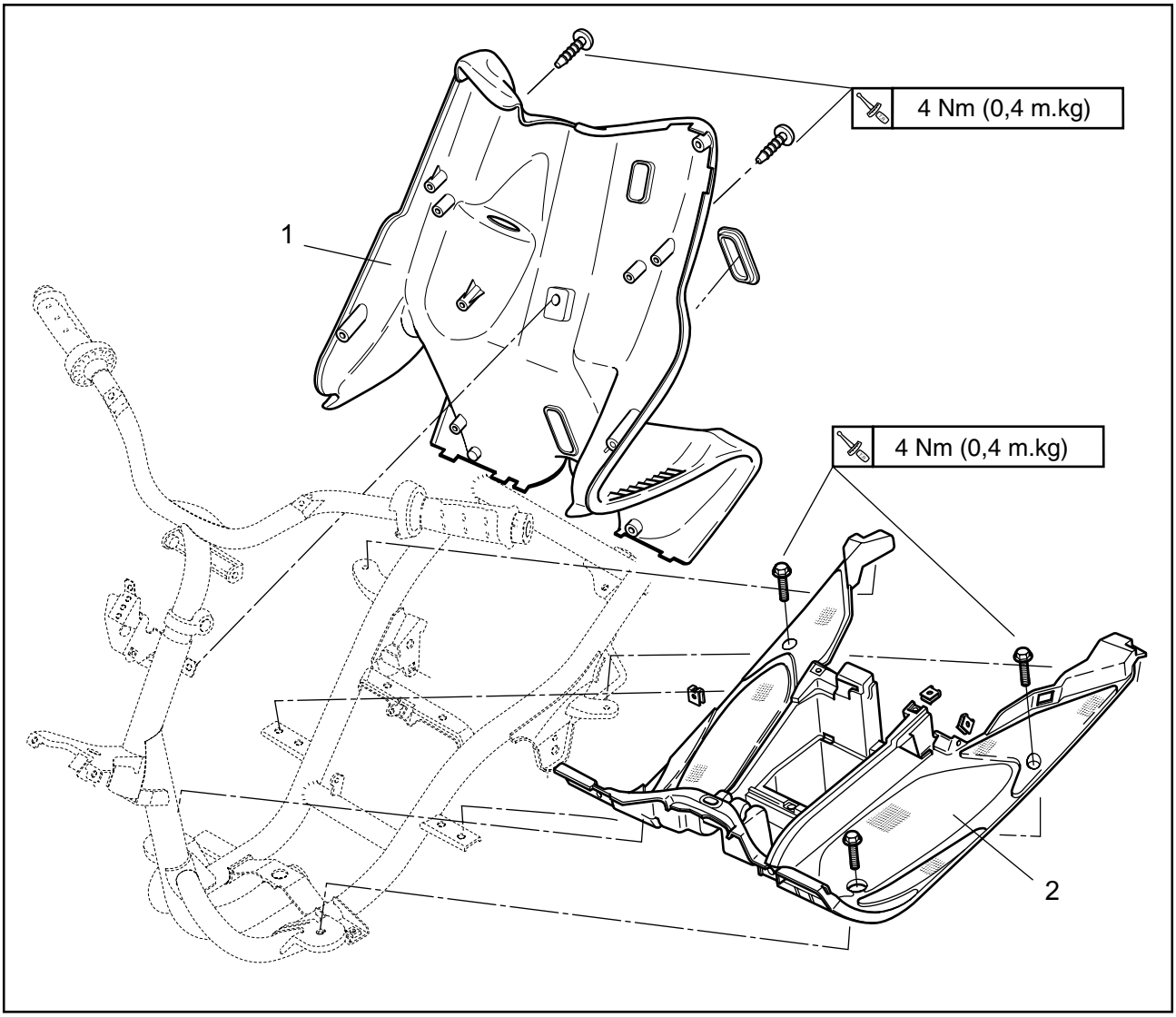
Order	Job/Part	Q'ty	Remarks
	Removing the handlebar covers		Remove the parts in the order listed.
I	Untighten:		
	Handlebar under cover ①		
II	Disconnect:		
	Speedometer lead	1	
	Wires and leads		
III	Remove:		
1	Handlebar cover (front)	1	
2	Handlebar cover (rear)	1	
3	Speedometer assy'	1	
4	Flasher light	1	**CAUTION:**
			When removing the cover, be careful to not damage the mounting clips.
			For installation, reverse the removal procedure.

BATTERY COVER AND LOWER COVER



Order	Job/Part	Q'ty	Remarks
	Removing the battery cover and lower cover.		Remove the parts in the order listed.
	Seat		Refer to “SEAT AND SIDE COVERS” section.
	Box and side covers		Refer to “BOX, SIDE COVERS AND MUD-GUARD” section.
	Front covers		Refer to "FRONT COVERS" section.
I	Remove:		
1	Battery cover	1	
2	Lower cover	1	**CAUTION:**
			When removing the cover, be careful to not damage the mounting clips.
			For installation, reverse the removal procedure.

INNER PANEL AND FOOTREST BOARD



Order	Job/Part	Q'ty	Remarks
	Removing the inner panel and footrest board.		Remove the parts in the order listed.
I	Remove:		**NOTE:**
1	Inner panel	1	To remove the main switch ring, turn it
2	Footrest board	1	counterclockwise.
			CAUTION: **When removing the cover, be careful to not damage the mounting clips.**
			For installation, reverse the removal procedure.

NOTE:
Correct routing of cables and wires is essential for a safe operation of this scooter. Refer to the section "CABLE ROUTING" in Chapter 2.

NOTE:
Be careful not to pinch any wires with the covers.

NOTE:
When installing the covers, be careful to not damage the mounting clips.

EAS00054

ENGINE

ADJUSTING THE ENGINE IDLING SPEED

CAUTION:

For safety reasons, place the scooter on the centerstand before starting the engine.

1. Start the engine and let it warm up for several minutes.

2. Attach:
   • engine tachometer
   (onto the spark plug lead)

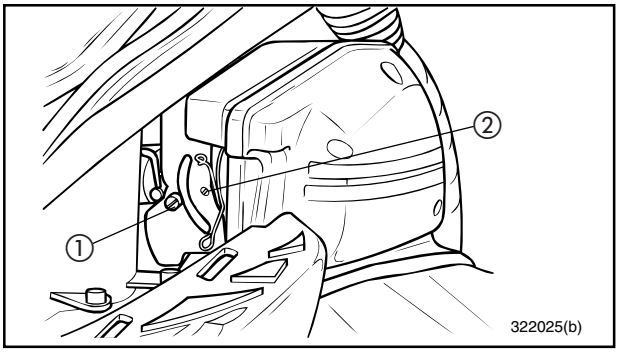
Engine tachometer
90890-03113

3. Measure:
   • engine idling speed
   Out of specification → Adjust.

Engine idling speed
2000 ± 200 r/mn

4. Adjust:
   • engine idling speed

a. Turn the pilot screw ① in until it is lightly seated.
b. Turn the pilot screw out the specified number of turns.

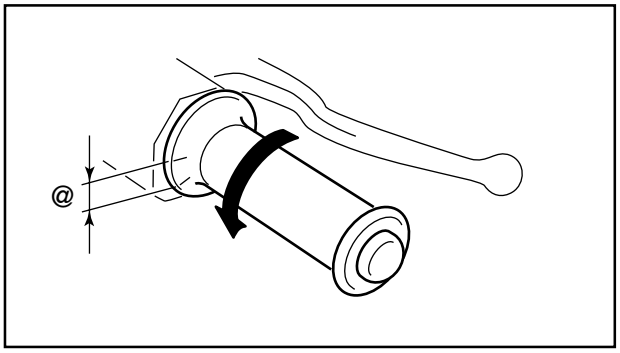


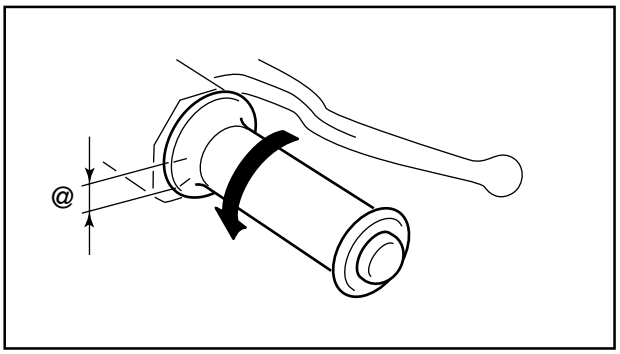
Pilot screw setting:
TEIKEI - TK ø 16
1 5/8

c. Turn the throttle stop screw ② in direction left or right until the specified engine idling speed is obtained.

Direction left	Engine idling speed is increased.
Direction right	Engine idling speed is decreased.

5. Adjust:
   • throttle cable free play
   Refer to “ADJUSTING THE THROTTLE CABLE FREE PLAY”.





Throttle cable free play (at the / flange of the throttle grip) @ 1.5 ~ 3.0 mm

EAS00058

ADJUSTING THE THROTTLE CABLE FREE PLAY

NOTE:

Prior to adjusting the throttle cable free play, the engine idling speed should be adjusted.

1. Check:
   - throttle cable free play @

   Out of specification → Adjust.

Throttle cable free play (at the flange of the throttle grip) 1.5 ~ 3.0 mm

2. Adjust:
   - throttle cable free play

NOTE:

When the throttle is opened, the accelerator cable is pulled.

Carburetor side

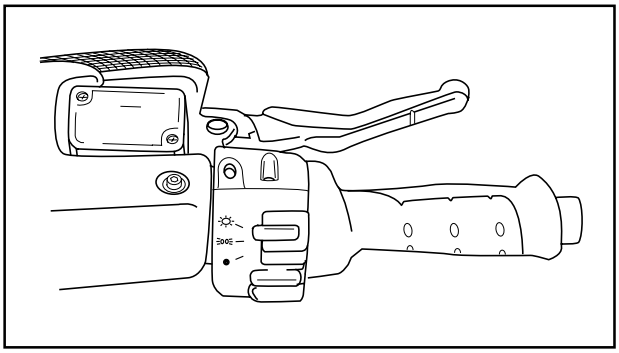
a. Loosen the locknut on the accelerator cable.
b. Turn the adjusting nut in direction left or right until the specified throttle cable free play is obtained.

Direction left	Throttle cable free play is increased.
Direction right	Throttle cable free play is decreased.

c. Tighten the locknut.

NOTE:

If the specified throttle cable free play cannot be obtained on the carburetor side of the cable, use the adjusting nut on the handlebar side.



Handlebar side

a. Loosen the locknut.

b. Turn the adjusting nut in direction left or rught until the specified throttle cable free play is obtained.

Direction left	Throttle cable free play is increased.
Direction right	Throttle cable free play is decreased.

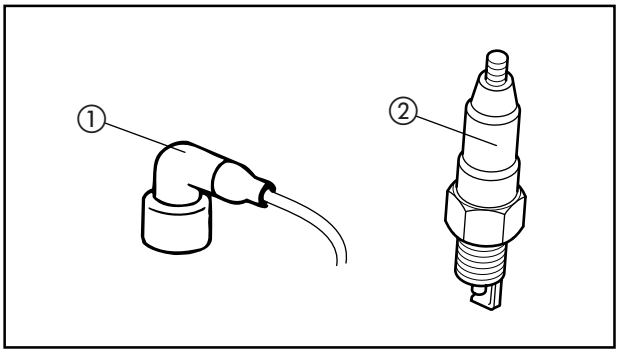
c. Tighten the locknut.

⚠ WARNING

After adjusting the throttle cable free play, start the engine and turn the handlebar to the right and to the left to ensure that this does not cause the engine idling speed to change.

EAS00060

CHECKING THE SPARK PLUG



1. Disconnect:
   • spark plug cap ①

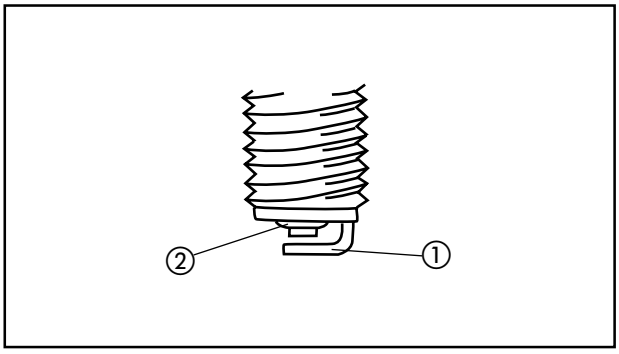
2. Remove:
   • spark plug ②

CAUTION:

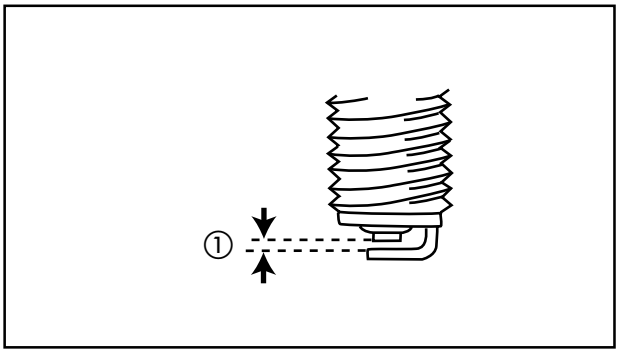
Before removing the spark plug, blow away any dirt accumulated in the spark plug well with compressed air to prevent it from falling into the cylinder.

3. Check:
   • spark plug type
   Incorrect → Change.

Spark plug type (manufacturer)
BR8HS (NGK)



4. Check:
   • electrodes ①
   Damage/wear→ Replace the spark plug.
   • insulator ②
   Abnormal color → Replace the spark plug.
   Normal color is medium-to-light tan.



5. Clean:
   • spark plug
   (with a spark plug cleaner or wire brush)

6. Measure:
   • spark plug gap ①
   (with a wire gauge or feeler gauge)
   Out of specification → Adjust.

Spark plug gap
0.5 ~ 0.7 mm

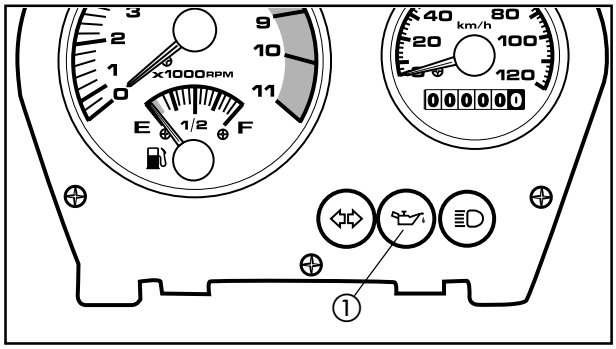
7. Install:
   • spark plug

Spark plug
20 Nm (2 m•kg)

NOTE:
- Before installing the spark plug, clean the spark plug and gasket surface.
- First tighten by hand, then torque to specification.

8. Connect:
   • spark plug cap

INSP REG



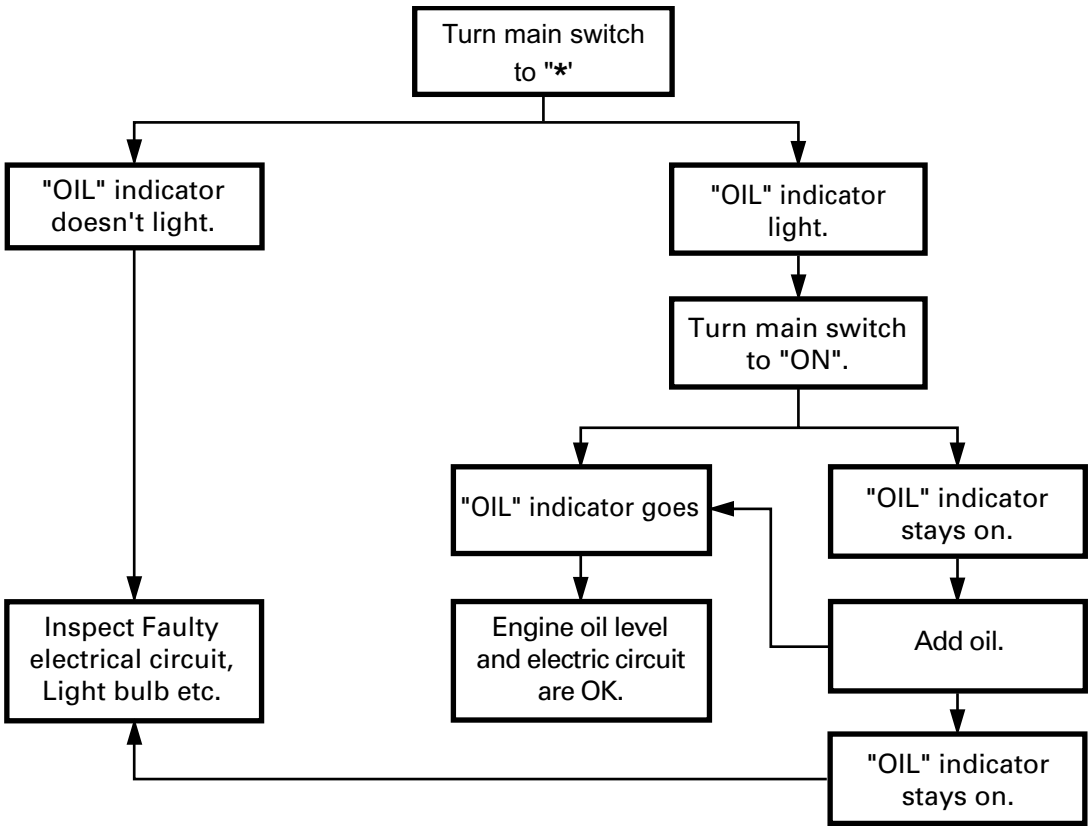
EAS00070

CHECKING THE ENGINE OIL LEVEL

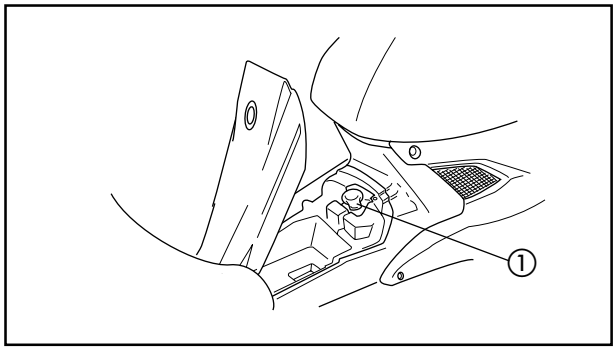
1. Inspect:
   • oil level
   Oil level low → Add oil to proper level as follows.

① "OIL" indicator light.

OIL LEVEL AND GAUGE CHECK


Turn main switch to "*'
"OIL" indicator doesn't light.
"OIL" indicator light.
Turn main switch to "ON".
"OIL" indicator goes
"OIL" indicator stays on.
Inspect Faulty electrical circuit, Light bulb etc.
Engine oil level and electric circuit are OK.
Add oil.
"OIL" indicator stays on.

Recommended oil:
Yamalube 2 or 2 stroke engine oil (JASO FC or EG-C,EG-D grade)
Capacity:
Total:
1.3 L

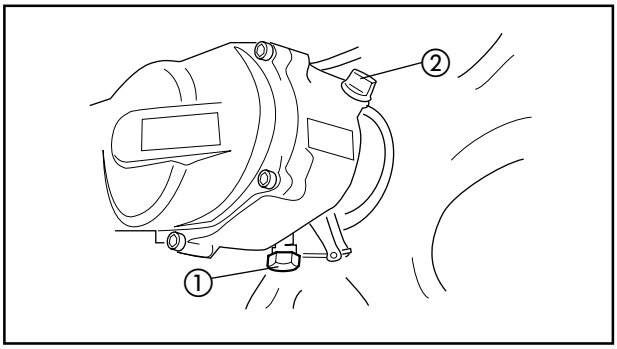


NOTE:

Install the oil tank filler cap ① and push it fully into the filler.

CAUTION:

Always use the same type of engine oil; mixing oils may result in a harmful chemical reaction and lead to poor performance.



CHANGING THE TRANSMISSION OIL

1. Remove:
   - drain plug ①
   - oil filler plug ②

   Drain the transmission oil.

2. Check:
   - gasket (drain plug)
   - O-ring (oil filler plug)

   Damage → Replace.

3. Install:
   - gasket New
   - drain plug

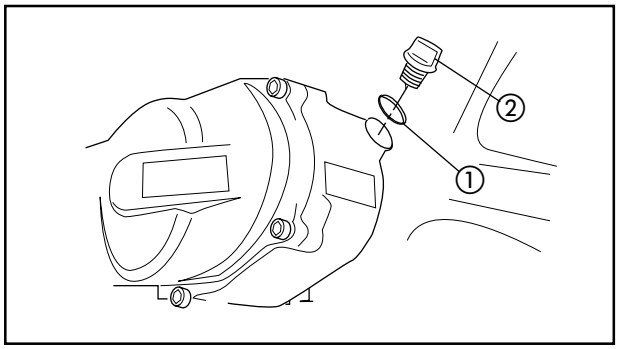
Drain plug:
18 Nm (1.8 m•kg)

4. Fill:
   - transmision case

Transmission oil:
SAE 85W/140 type SE.
Capacity:
0.11 L
Total amount:
0.13 L

NOTE:

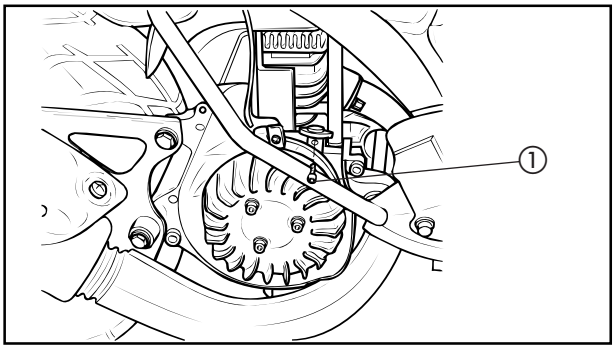
Wipe off any oil spilt on the crankcase, tire or wheel.



5. Install:
   - O-ring ①
   - oil filler plug ②.

AUTOLUBE PUMP AIR BLEEDING

1. Remove:
   - fan cover ①

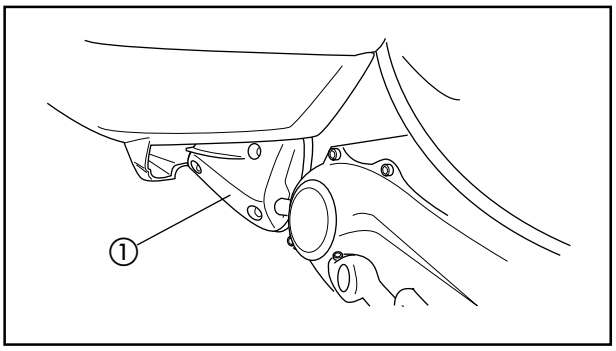


2. Bleed:
   • Pump housing and oil hose

a. Place a rag under the pump.
b. Remove the bleed screw ①
c. Let oil run until there are no more air bubbles in it.
d. When there are no more bubbles, tighten the bleed screw.

NOTE:
Check the condition of bleed screw gasket. If it is damaged, replace it with a new one.

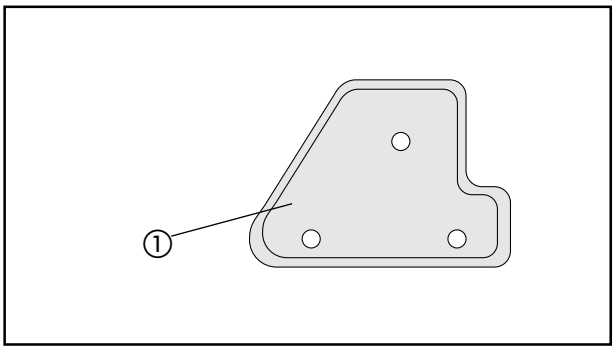
e. Start the engine.
f. Let engine run two or three minutes at 2000 rpm. This will force out any air in the hose.



EAS00089
CLEANING THE AIR FILTER ELEMENT

1. Remove:
   • air cleaner case cover ①

CAUTION:
Never operate the engine with the air cleaner element removed. Unfiltered air will cause rapid wear of engine parts and possible engine damage.



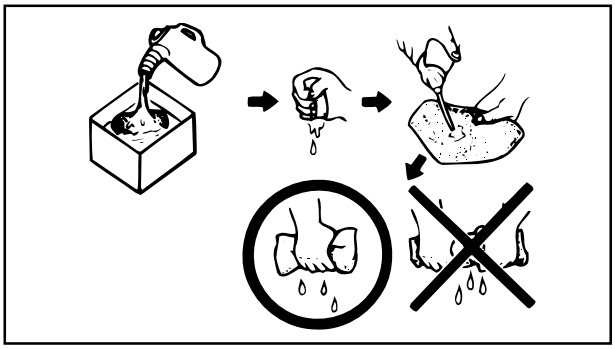
2. Remove:
   • air filter case cover
   • air filter element

3. Inspect:
   • air filter element ①
   Damage → Replace

3. Clean:
   • air filter element
   (with solvent)

a. Wash the element gently but thoroughly in a solvent.

⚠ WARNING
Never use low flash point solvents, such as gasoline, to clean the air filter element. Such solvents may cause a fire or an explosion.



b. Squeeze excess solvent out of the element and let dry.

CAUTION:
Do not twist the element.

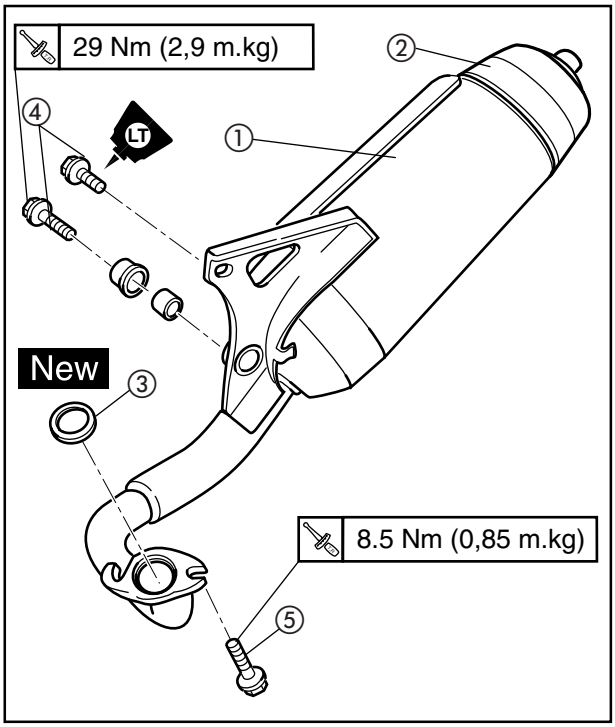
c. Apply foam air filter oil or motor oil on the element.
d. Squeeze out the excess oil.

NOTE:
The element should be wet but not dripping.

EAS00100
CHECKING THE EXHAUST SYSTEM

The following procedure applies to all of the exhaust pipes, mufflers and gaskets.

1. Remove:
   - exhaust pipe bolt (cylinder)
   - exhaust pipe bolt (engine)



2. Check:
   - exhaust pipe ①
   - muffler ②

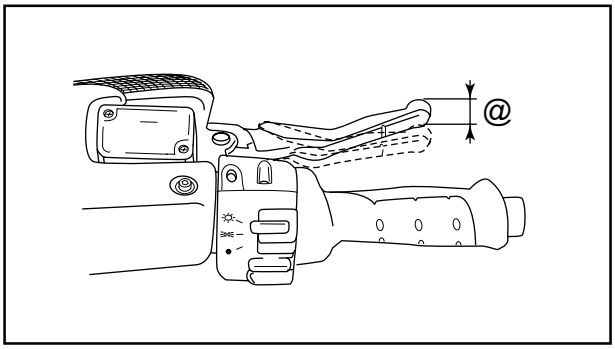
Cracks/damage → Replace.
   - gasket ③

Exhaust gas leaks → Replace.

3. Install:
   - exhaust pipe bolt (engine)
   - exhaust pipe bolt (cylinder)

4. Tighten:
   - exhaust pipe bolt (cylinder) ⑤
   - exhaust pipe bolt (engine) ④

Exhaust pipe bolt (engine)
29 Nm (2.9 m•kg)
Exhaust pipe bolt (cylinder)
8.5 Nm (0.85 m•kg)



EAS00108

CHASSIS

ADJUSTING THE FRONT BRAKE

1. Check:
   • brake lever free play @
   Out of specification → Adjust.

Brake lever free play (at the end of the brake lever)
10 ~ 20 mm

⚠ WARNING

A soft or spongy feeling in the brake lever can indicate the presence of air in the brake system. This air must be removed by bleeding the brake system before the scooter is operated. Air in the system will reduce brake performance and can result in lost of control and an accident. Inspect and bleed the system if necessary.

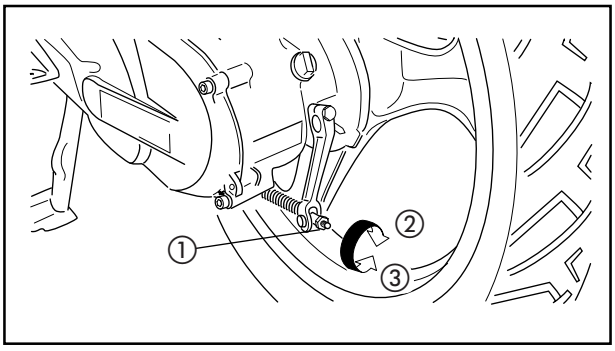
EAS00114

ADJUSTING THE REAR BRAKE

1. Check:
   • brake lever free play
Out of specification → Adjust.

Brake lever free play
10 ~ 20 mm

2. Adjust:
   • brake lever free play



Rear wheel side

a. Turn the adjusting nut ① in direction ② or ③ until the specified brake lever free play is obtained.

Direction ②	Brake lever free play is decreased.
Direction ③	Brake lever free play is increased.

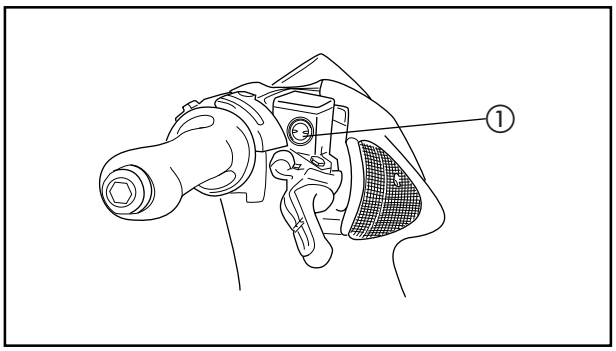
CAUTION:

After adjusting the brake lever free play, make sure there is no brake drag.

EAS00116
CHECKING THE BRAKE FLUID LEVEL

1. Stand the scooter on a level surface.

NOTE:
- Place the scooter on a suitable stand.
- Make sure the scooter is upright.
- In order to ensure a correct reading of the brake fluid level, make sure the top of the reservoir is horizontal.



2. Check:
   brake fluid level
   Below the minimum level mark ① → Add the recommended brake fluid to the proper level.

Recommended brake fluid
DOT #3 or DOT #4

⚠ WARNING
- **Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.**
- **Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.**
- **When refilling, be careful that water does not enter the reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.**

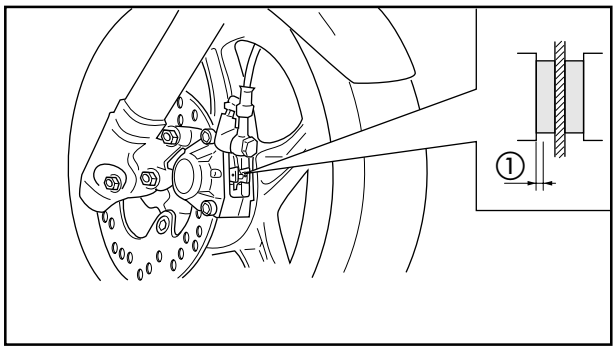
CAUTION:
Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.

EAS00123
CHECKING THE FRONT BRAKE PADS

The following procedure applies to all of the brake pads.

1. Operate the brake.

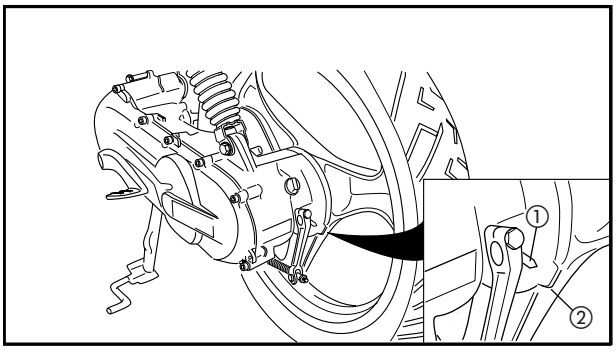
2. Check:
   • brake pad
   Out of specification → Replace.



NOTE:
Replace the brake pad and spring as a set when replacing the brake pads.

Wear limit ① :
0.5 mm

Refer to "FRONT BRAKE" in chapter 6.



EAS00126
CHECKING THE BRAKE SHOES

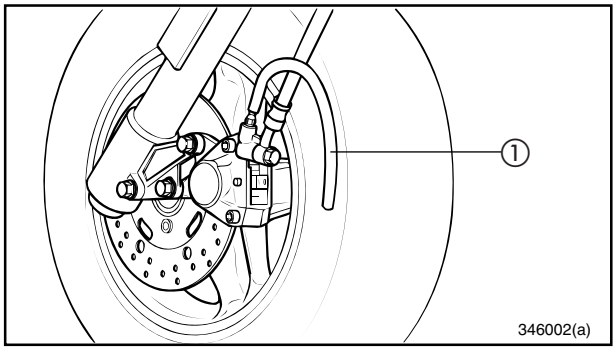
1. Operate the brake.

2. Check:
   • wear indicator ①
   Reaches the wear limit line ② → Replace the brake shoes as a set.
   Refer to “REAR WHEEL” in chapter 6.

EAS00133
BLEEDING THE HYDRAULIC BRAKE SYSTEM

1. Bleed:
   • brake fluid.

a. Add proper brake fluid into the reservoir.
b. Install the diaphragm. Be careful not to spill any fluid or allow the reservoir overflow.
c. Connect a clear plastic tube ① tightly to the caliper bleed screw.
d. Place the other end of the tube into a container.
e. Slowly apply the brake lever several times.
f. Pull the lever as far as possible and hold it there.
g. Loosen the bleed screw and pull the lever all the way.
h. When the lever is completely pulled, tighten the bleed screw, then release the lever.



i. Repeat steps (e) to (h) until all air bubbles have been removed from the system.
j. Add brake fluid to proper level.

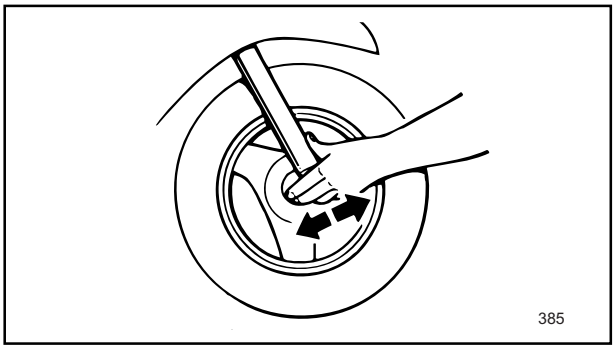
⚠ WARNING
Check the operation of the brake after bleeding the brake system.

EAS00148
CHECKING AND ADJUSTING THE STEERING HEAD

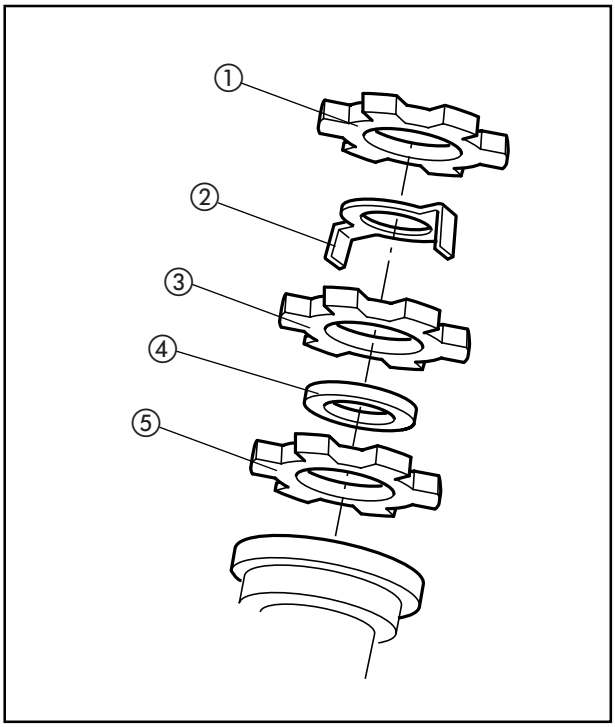
1. Stand the scooter on a level surface.

⚠ WARNING
Securely support the scooter so that there is no danger of it falling over.

NOTE:
Place the scooter on a suitable stand so that the front wheel is elevated.

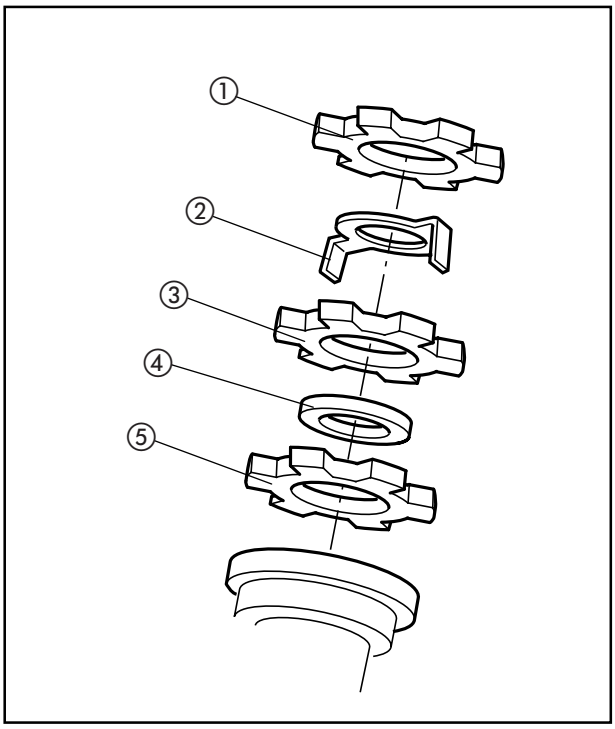


2. Check:
   • steering head
   Grasp the bottom of the front fork legs and gently rock the front fork.
   Binding/looseness → Adjust the steering head.



3. Remove:
   • front cover
   Refer to "FRONT COVER"
   • handlebar
   Refer to "REMOVING THE HANDLEBAR" in chapter 6.
4. Adjust:
   • steering head
a. Remove the upper ring nut ①, the lock washer ② , the center ring nut ③ and the rubber washer ④.
b. Loosen the lower ring nut ⑤ and then tighten it to specification with the ring nut wrench.

NOTE:
Set the torque wrench at a right angle to the ring nut wrench.



Steering nut wrench
90890-01403

Lower ring nut (initial tightening torque)
38 Nm (3.8 m•kg)

c. Loosen the lower ring nut ⑤ of 1/4 turn and then tighten it to specification with a steering nut wrench .

CAUTION:
Do not overtighten the lower ring nut.

Lower ring nut (final tightening torque)
22 Nm (2.2 m•kg)

d. Check the steering head for looseness or binding by turning the front fork all the way in both directions. If any binding is felt, remove the lower bracket and check the upper and lower bearings.
Refer to "STEERING HEAD" in chapter 6.
e. Install the rubber washer.
f. Install the center ring nut.
g. Finger tighten the center ring nut ③, then align the slots of both ring nuts. If necessary, hold the lower ring nut and tighten the center ring nut until their slots are aligned.
h. Install the lock washer ①.

NOTE:
Make sure the lock washer tabs a sit correctly in the ring nut slots.

i. Hold the lower and center ring nuts with a ring nut wrench and tighten the upper ring nut with a steering nut wrench.

Steering nut wrench
90890-01403

Ring nut wrench
90890-01268

Upper ring nut
75 Nm (7.5 m•kg)

5. Install:
   • front cover
   Refer to "FRONT COVER"
   • Handlebar
   Refer to "HANDLEBAR" in chapter 6.

	Handlebar holder bolt 60 Nm (6.0 m•kg)

EAS00151
CHECKING THE FRONT FORK

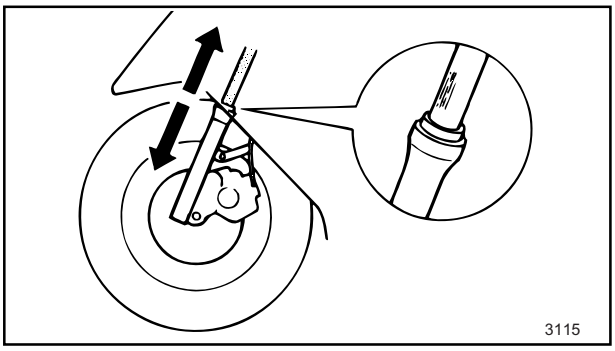
1. Stand the scooter on a level surface.

⚠ WARNING

Securely support the scooter so that there is no danger of it falling over.

2. Check:
   • inner tube
   Damage/scratches→ Replace.
   • oil seal
   Oil leakage → Replace.

3. Hold the scooter upright and apply the front brake.



4. Check:
   • front fork operation
   Push down hard on the handlebar several times and check if the front fork rebounds smoothly.
   Rough movement → Repair.
   Refer to "FRONT FORK" in chapter 6.

EAS00165
CHECKING THE TIRES

The following procedure applies to both of the tires.

1. Measure:
   • tire pressure
   Out of specification → Regulate.

⚠ WARNING

The tire pressure should only be checked and regulated when the tire temperature equals the ambient air temperature.
The tire pressure and the suspension must be adjusted according to the total weight (including cargo, rider, passenger and accessories) and the anticipated riding speed.
Operation of an overloaded scooter could cause tire damage, an accident or an injury. NEVER OVERLOAD THE SCOOTER.

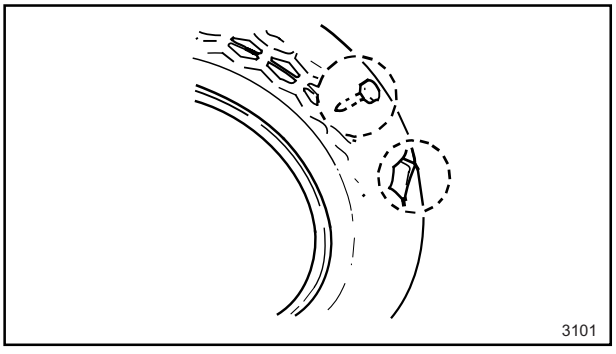
Basic weight (with oil and a full fuel tank)	95 kg
Maximum load*	280 kg

Cold tire pressure	Front	Rear
Up to 90 kg load*	150 kPa (1.50 kg/cm^2)	150 kPa (1.50 kg/cm^2)
90 kg ~ maximum load*	150 kPa (1.50kg/cm^2)	150 kPa (1.50 kg/cm^2)

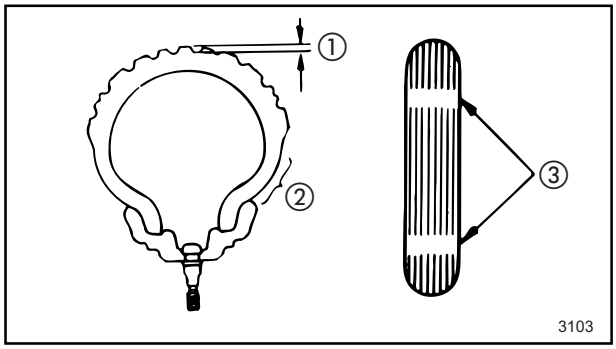
* total of cargo, rider, passenger and accessories

⚠ WARNING

It is dangerous to ride with a worn-out tire. When the tire tread reaches the wear limit, replace the tire immediately.



2. Check:
   tire surfaces
   Damage/wear → Replace the tire.



Minimum tire tread depth
0.8 mm

① Tire tread depth
② Side wall
③ Wear indicator

⚠ WARNING

Do not use a tubeless tire on a wheel designed only for tube tires to avoid tire failure and personal injury from sudden deflation.
When using tube tires, be sure to install the correct tube.
Always replace a new tube tire and a new tube as a set.
To avoid pinching the tube, make sure the wheel rim band and tube are centered in the wheel groove.
Patching a punctured tube is not recommended. If it is absolutely necessary to do so, use great care and replace the tube as soon as possible with a good quality replacement.

Tube wheel	Tube tire only
Tubeless wheel	Tube or tubeless tire

⚠ WARNING

After extensive tests, the tires listed below have been approved by MBK industrie for this model. The front and rear tires should always be by the same manufacturer and of the same design. No guarantee concerning handling characteristics can be given if a tire combination other than one approved by MBK is used on this scooter.

Front tire

Manufacturer	MICHELIN / PIRELLI
Model	BOPPER / SL 36
Size	130/60 - 13

Rear tire

Manufacturer	MICHELIN / PIRELLI
Model	BOPPER / SL 36
Size	140/60 - 13

EAS00168
CHECKING THE WHEELS

The following procedure applies to both of the wheels.

1. Check:
   • wheel
   Damage/out-of-round → Replace.

⚠ WARNING

Never attempt to make any repairs to the wheel.

NOTE:

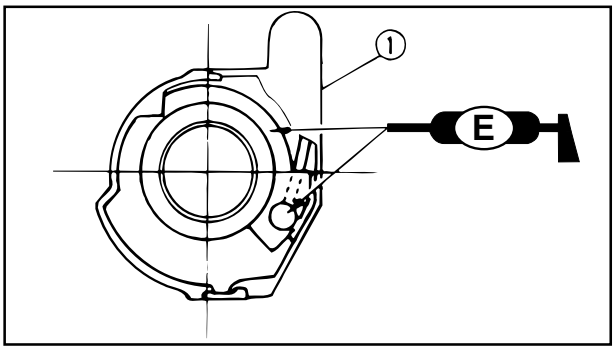
After a tire or wheel has been changed or replaced, always balance the wheel.

EAS00170
CHECKING AND LUBRICATING THE CABLES

The following procedure applies to all of the cable sheaths and cables.

⚠ WARNING

Damaged cable sheaths may cause the cable to corrode and interfere with its movement. Replace damaged cable sheaths and cables as soon as possible.



1. Check:
   • cable sheath
   Damage → Replace.

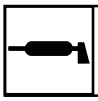
2. Check:
   • cable operation
   Rough movement → Lubricate.

Recommended lubricant
Engine oil or a suitable cable lubricant

NOTE:

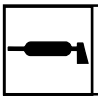
Hold the cable end upright and pour a few drops of lubricant into the cable sheath or use a suitable lubricating device.

EAS00173
LUBRICATING THE CENTERSTAND
Lubricate the pivoting point and metal-to-metal moving parts of the centerstand.



Recommended lubricant
Engine oil

EAS00174
LUBRICATING THE REAR SUSPENSION
Lubricate the pivoting point and metal-to-metal moving parts of the rear suspension.



Recommended lubricant
Molybdenum disulfide grease

EAS00177

ELECTRICAL SYSTEM

CHECKING THE BATTERY

⚠ WARNING

Batteries generate explosive hydrogen gas and contain electrolyte which is made of poisonous and highly caustic sulfuric acid. Therefore, always follow these preventive measures:

- **Wear protective eye gear when handling or working near batteries.**
- **Charge batteries in a well-ventilated area.**
- **Keep batteries away from fire, sparks or open flames (e.g., welding equipment, lighted cigarettes).**
- **DO NOT SMOKE when charging or handling batteries.**

KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.

- **Avoid bodily contact with electrolyte as it can cause severe burns or permanent eye injury.**

FIRST AID IN CASE OF BODILY CONTACT:
EXTERNAL

- **SKIN - Wash with water.**
- **EYES - Flush with water for 15 minutes and get immediate medical attention.**

INTERNAL

- **Drink large quantities of water or milk followed with milk of magnesia, beaten egg or vegetable oil. Get immediate medical attention.**

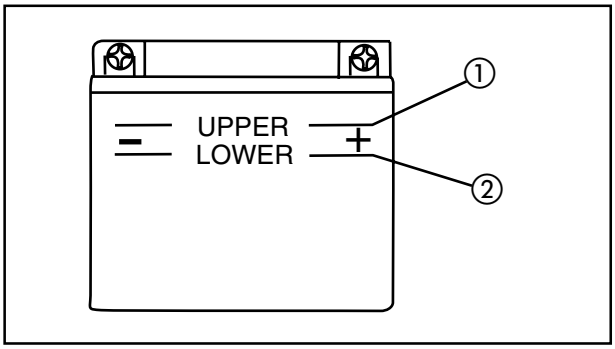
1. Remove:
   - battery cover

2. Disconnect:
   - battery leads
   (from the battery terminals)

CAUTION:

First, disconnect the negative battery lead , and the positive battery lead .

3. Remove:
   - battery



4. Check:
   • electrolyte level
   The electrolyte level should be between the minimum level mark ② and the maximum level mark ①.
   Below the minimum level mark → Add distilled water to the proper level.

CAUTION:
Add only distilled water. Tap water contains minerals which are harmful to the battery.

5. Check:
   • specific gravity
   Less than 1.280 → Recharge the battery.

Specific gravity
1.280 at 20°C

6. Charge:
   • battery

Battery charging amperage and time
0.3 amps/10 hrs

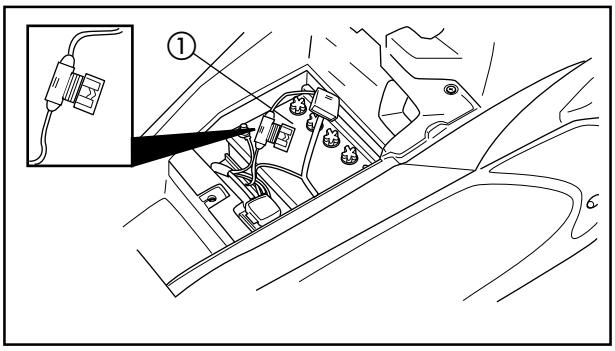
⚠ WARNING
Do not quick charge a battery.

CAUTION:
- **Loosen the battery sealing caps.**
- **To ensure maximum performance, always charge a new battery before using it.**
- **Do not use a high-rate battery charger. They force a high-amperage current into the battery quickly and can cause battery overheating and battery plate damage.**
- **If it is impossible to regulate the charging current on the battery charger, be careful not to overcharge the battery.**
- **When charging a battery, be sure to remove it from the scooter. (If charging has to be done with the battery mounted on the scooter, disconnect the negative battery lead from the battery terminal.)**
- **To reduce the chance of sparks, do not plug in the battery charger until the battery charger leads are connected to the battery.**
- **Before removing the battery charger lead clips from the battery terminals, be sure to turn off the battery charger.**

- **Make sure the battery charger lead clips are in full contact with the battery terminal and that they are not shorted. A corroded battery charger lead clip may generate heat in the contact area and a weak clip spring may cause sparks.**
- **If the battery becomes hot to the touch at any time during the charging process, disconnect the battery charger and let the battery cool before reconnecting it. Hot batteries can explode!**

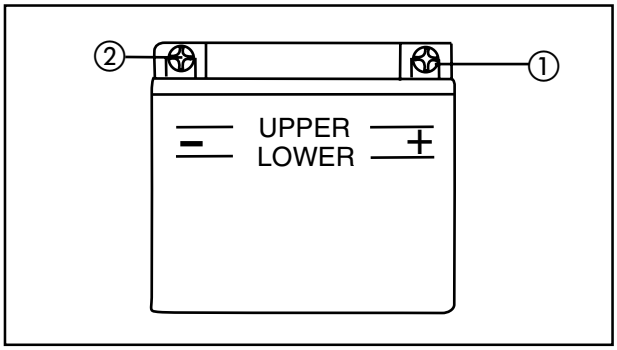
NOTE:

Replace the battery whenever:
- battery voltage does not rise to specification or bubbles fail to rise during charging,
- sulphation of one or more battery cells occurs (as indicated by the battery plates turning white or material accumulating in the bottom of the battery cell),
- specific gravity readings after a long, slow charge indicate that one battery cell's charge is lower than the rest,
- warpage or buckling of the battery plates or insulators is evident.



7. Install:
   - battery ①

8. Check:
   - battery terminals
   Dirt → Clean with a wire brush.
   Loose connection → Connect properly.



9. Connect:
   - battery leads
   (to the battery terminals)

CAUTION:

First, connect the positive battery lead ①, and then the negative battery lead ②.

10. Lubricate:
    • battery terminals

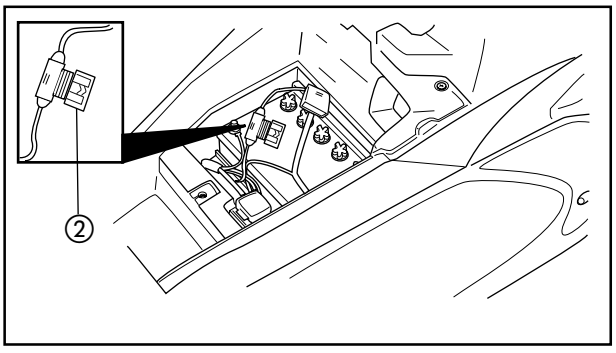
	Recommended lubricant **Dielectric grease**

11. Install:
    • battery cover
    Refer to "BATTERY COVER AND LOWER COVER".

EAS00181
CHECKING THE FUSE

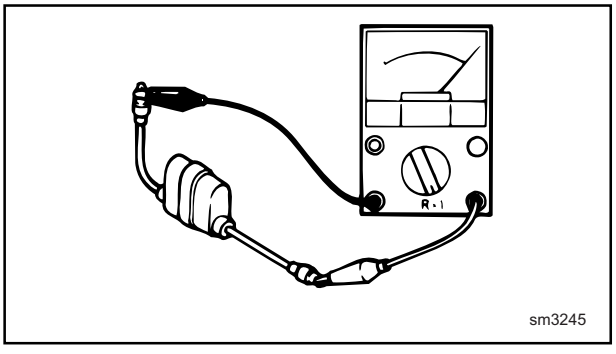
The following procedure applies to all of the fuses.

CAUTION:
To avoid a short circuit, always set the main switch to "OFF" when checking or replacing a fuse.



1. Remove:
    • battery cover
    Refer to "BATTERY COVER AND LOWER COVER".
2. Check:
    • continuity

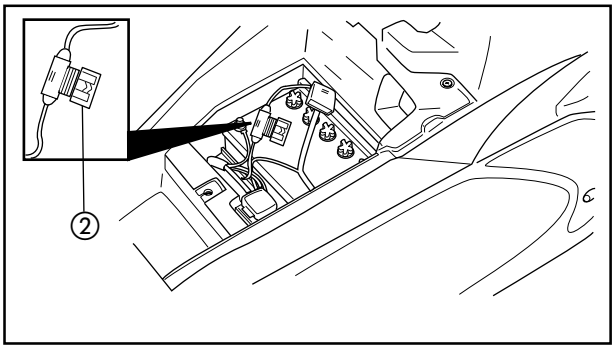
a. Connect the pocket tester to the fuse ① and check the continuity.



NOTE:
Set the pocket tester selector to "Ω x 1".

	Pocket tester **90890-03112**

b. If the pocket tester indicates "∞", replace the fuse.



3. Replace:
   • blown fuse ①

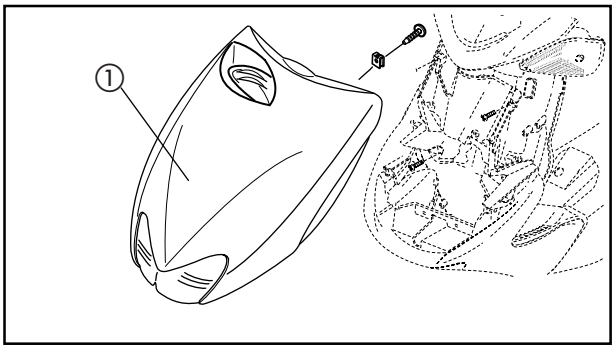
a. Set the main switch to “OFF”.
b. Install a new fuse of the correct amperage.
c. Set on the switches to verify if the electrical circuit is operational.
d. If the fuse immediately blows again, check the electrical circuit.

Fuse
main circuit : 7.5 A

⚠ WARNING

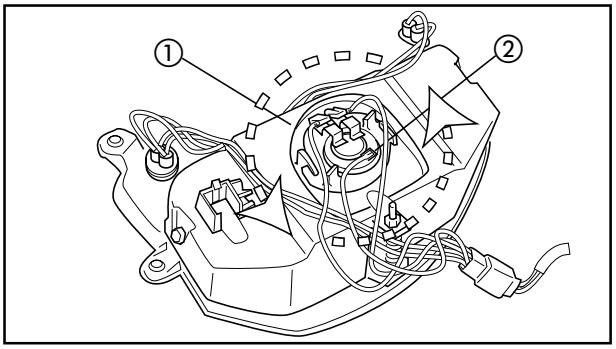
Never use a fuse with an amperage rating other than that specified. Improvising or using a fuse with the wrong amperage rating may cause extensive damage to the electrical system, cause the lighting and ignition systems to malfunction and could possibly cause a fire.

4. Install:
   • battery cover
   Refer to "BATTERY COVER AND LOWER COVER"



EAS00182
REPLACING THE HEADLIGHT BULB

1. Disconnect:
   • front cover ①
   Refer to "FRONT COVERS"



2. Detach:
   • headlight bulb holder ①
3. Remove:
   • headlight bulb ②

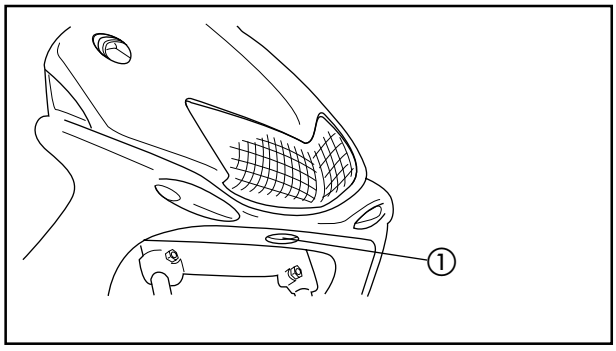
⚠ WARNING

Since the headlight bulb gets extremely hot, keep flammable products and your hands away from the bulb until it has cooled down.

4. Install:
   • headlight bulb New
   Secure the new headlight bulb with the headlight bulb holder.

CAUTION:
Avoid touching the glass part of the headlight bulb to keep it free from oil, otherwise the transparency of the glass, the life of the bulb and the luminous flux will be adversely affected. If the headlight bulb gets soiled, thoroughly clean it with a cloth moistened with alcohol or lacquer thinner.

5. Attach:
   • headlight bulb holder
6. Connect:
   • headlight bulb
7. Install:
   • front cover
   Refer to “FRONT COVERS"

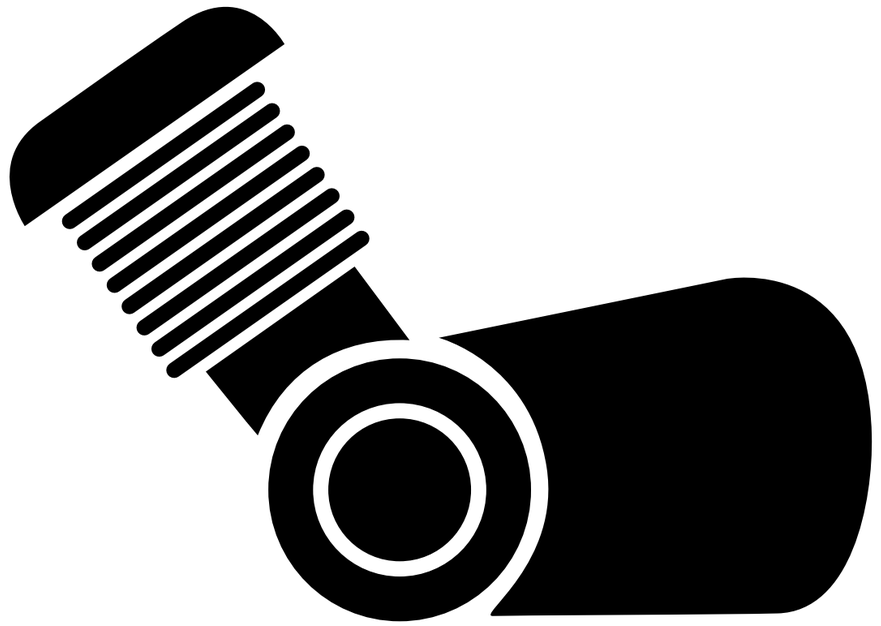


EAS00184
ADJUSTING THE HEADLIGHT BEAM

1. Adjust:
   • headlight beam

a. Turn the adjusting screw ① in higher or lower position.

Higher	Turn out screw.
Lower	Turn in screw.



ENG

4

CHAPTER 4.
OVERHAULING THE ENGINE

ENGINE 4-1
LEADS AND HOSES 4-1
EXHAUST PIPE 4-3
ENGINE 4-4
INSTALLING THE ENGINE 4-5

CYLINDER HEAD, CYLINDER AND PISTON 4-6
PISTON PIN AND PISTON REMOVAL 4-7
CYLINDER HEAD INSPECTION 4-7
CYLINDER AND PISTON INSPECTION 4-8
PISTON RINGS INSPECTION 4-10
PISTON PIN AND PISTON PIN BEARING INSPECTION 4-10
PISTON PIN AND PISTON INSTALLATION 4-11
CYLINDER AND CYLINDER HEAD 4-12

V-BELT, CLUTCH AND SECONDARY/PRIMARY SHEAVE 4-14
CRANKCASE COVER (LEFT) 4-14
KICK STARTER 4-15
KICK STARTER INSTALLATION 4-16
V-BELT, CLUTCH AND SECONDARY/PRIMARY SHEAVE 4-17
SECONDARY SHEAVE 4-18
PRIMARY SHEAVE REMOVAL 4-19
SECONDARY SHEAVE REMOVAL 4-19
CLUTCH INSPECTION 4-20
V-BELT INSPECTION 4-21
PRIMARY SHEAVE INSPECTION 4-22
SECONDARY SHEAVE INSPECTION 4-23
SECONDARY SHEAVE INSTALLATION 4-24
PRIMARY SHEAVE INSTALLATION 4-25

STARTER CLUTH AND STARTER MOTOR 4-27
STARTER CLUTCH AND GEARS 4-29

C.D.I. MAGNETO 4-30
C.D.I. MAGNETO REMOVAL 4-31
C.D.I. MAGNETO INSTALLATION 4-31

AUTOLUBE PUMP 4-32
AUTOLUBE PUMP INSTALLATION 4-33

TRANSMISSION 4-34
CHECKING THE TRANSMISSION 4-36

CRANKCASE AND REED VALVE 4-37
CRANKCASE (RIGHT) REMOVAL 4-39
CRANKCASE (RIGHT) INSTALLATION 4-40

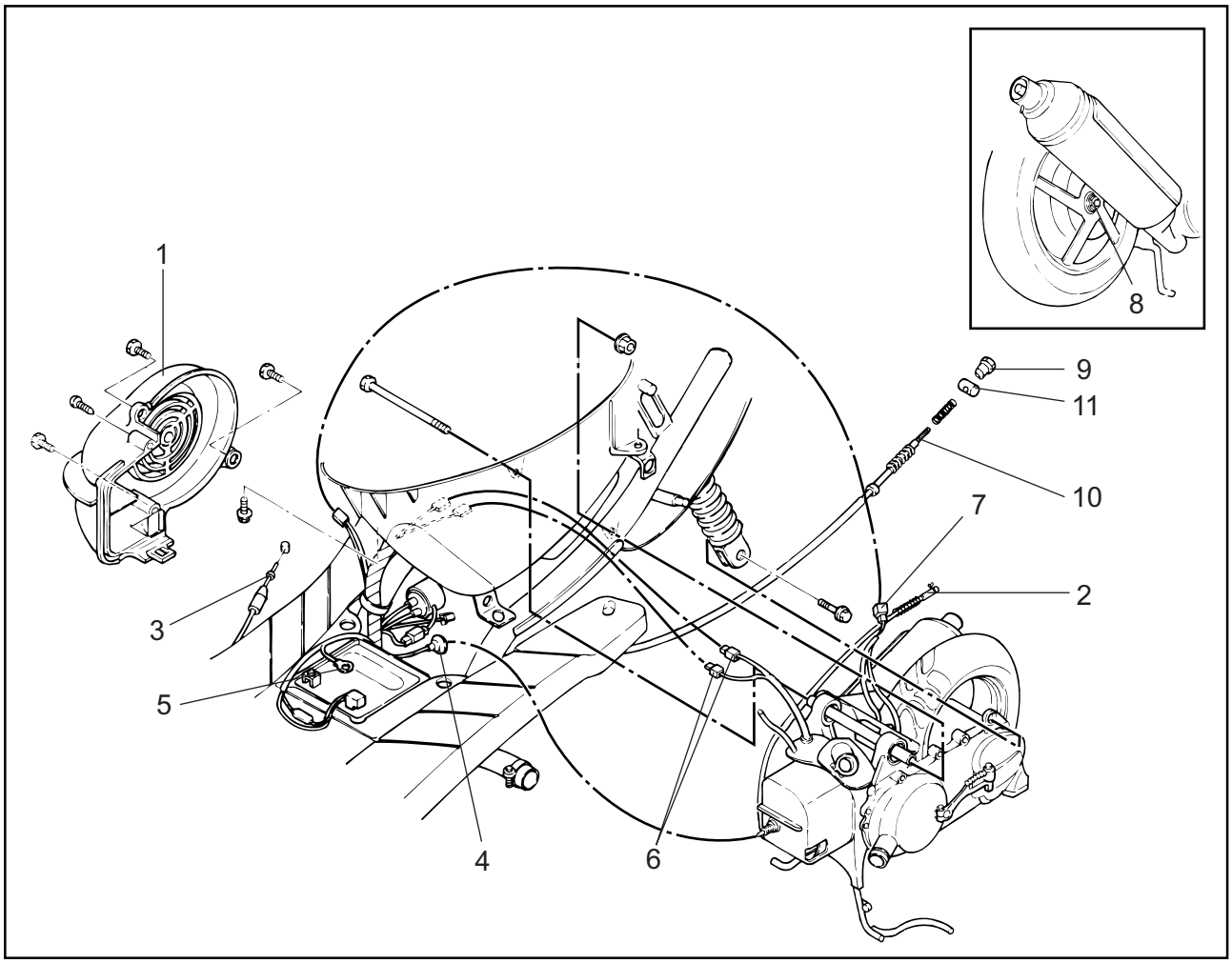
CRANKSHAFT 4-42
CRANKSHAFT REMOVAL 4-43
CRANKSHAFT INSPECTION 4-43
CRANKSHAFT INSTALLATION 4-44

EAS00188

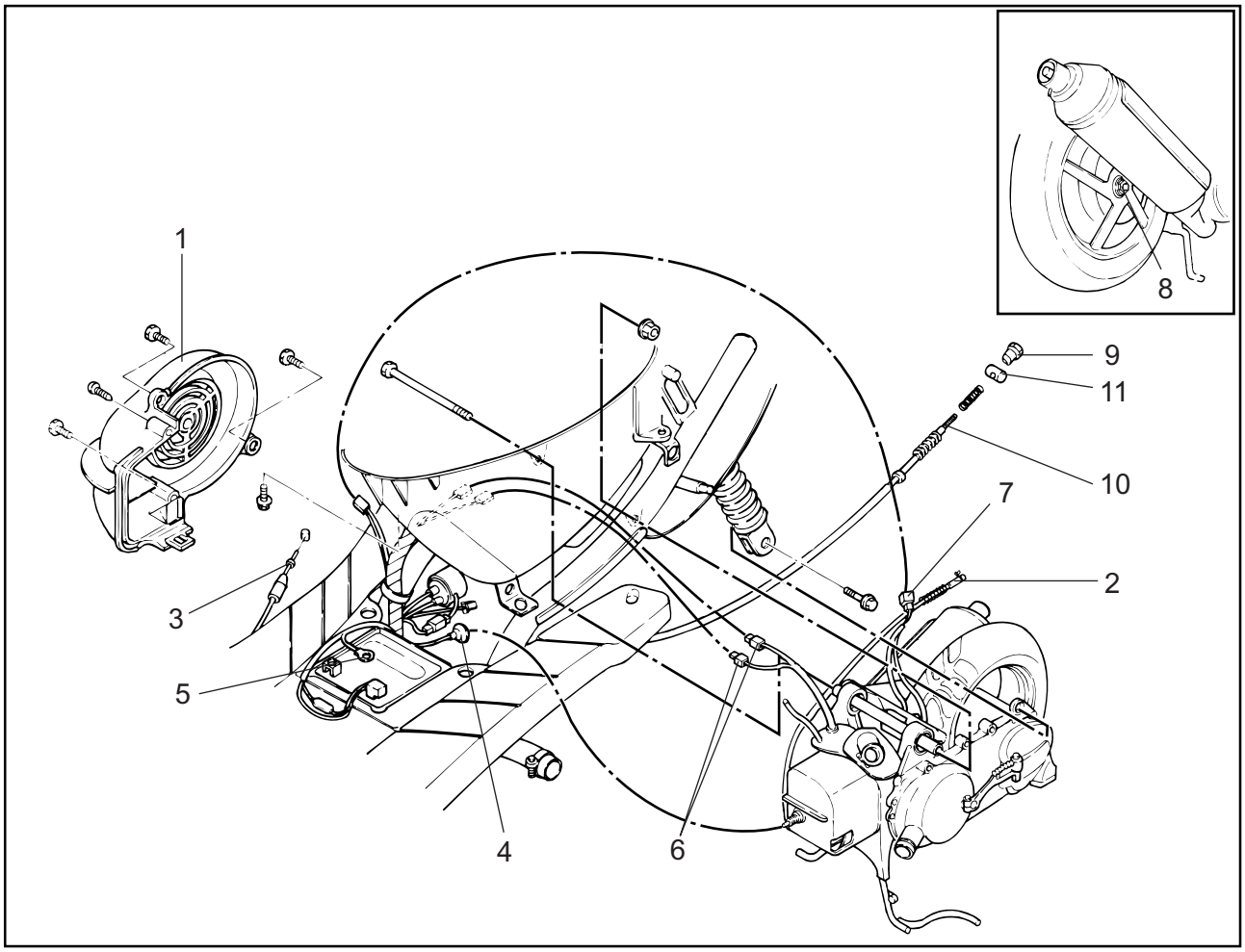
OVERHAULING THE ENGINE

ENGINE

LEADS AND HOSES

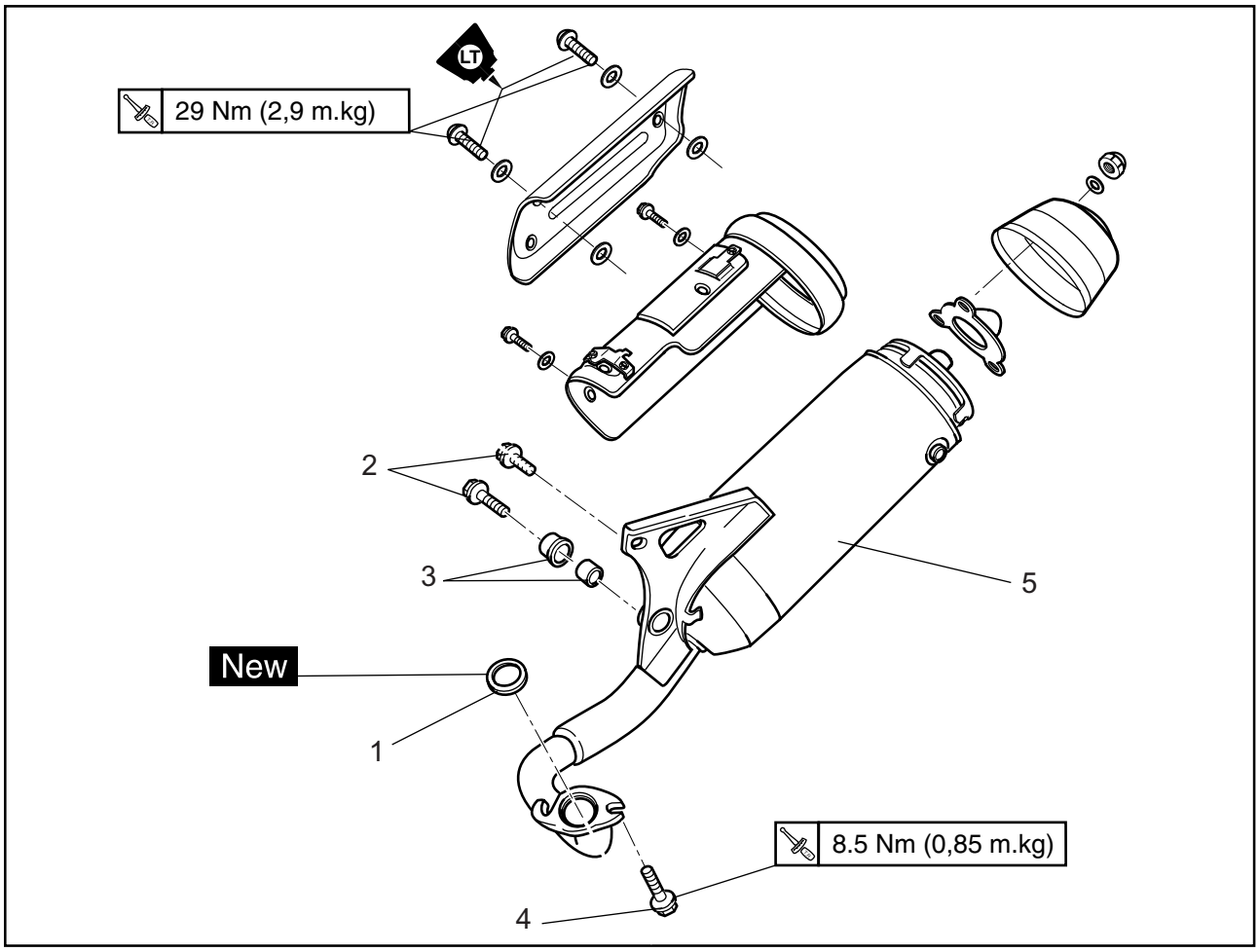


Order	Job/Part	Q'ty	Remarks
	Removing the leads and hoses		Remove the parts in the order listed.
	Seat		Refer to "SEAT AND SIDE COVERS" in chapter 3.
	Upper side covers		
	Glove compartment cover		Refer to "BOX, SIDE COVERS AND MUDGUARD" in chapter 3.
	Oil cover		
	Lower side covers		
	Rear mudguard		
I	Remove:		
1	Air shroud	1	
II	Remove:		
2	Autolube delivery hose	1	
3	Autolube pump cable	1	
4	Spark plug cap	1	
5	Battery lead (-)	1	
6	CDI magneto leads coupler	2	



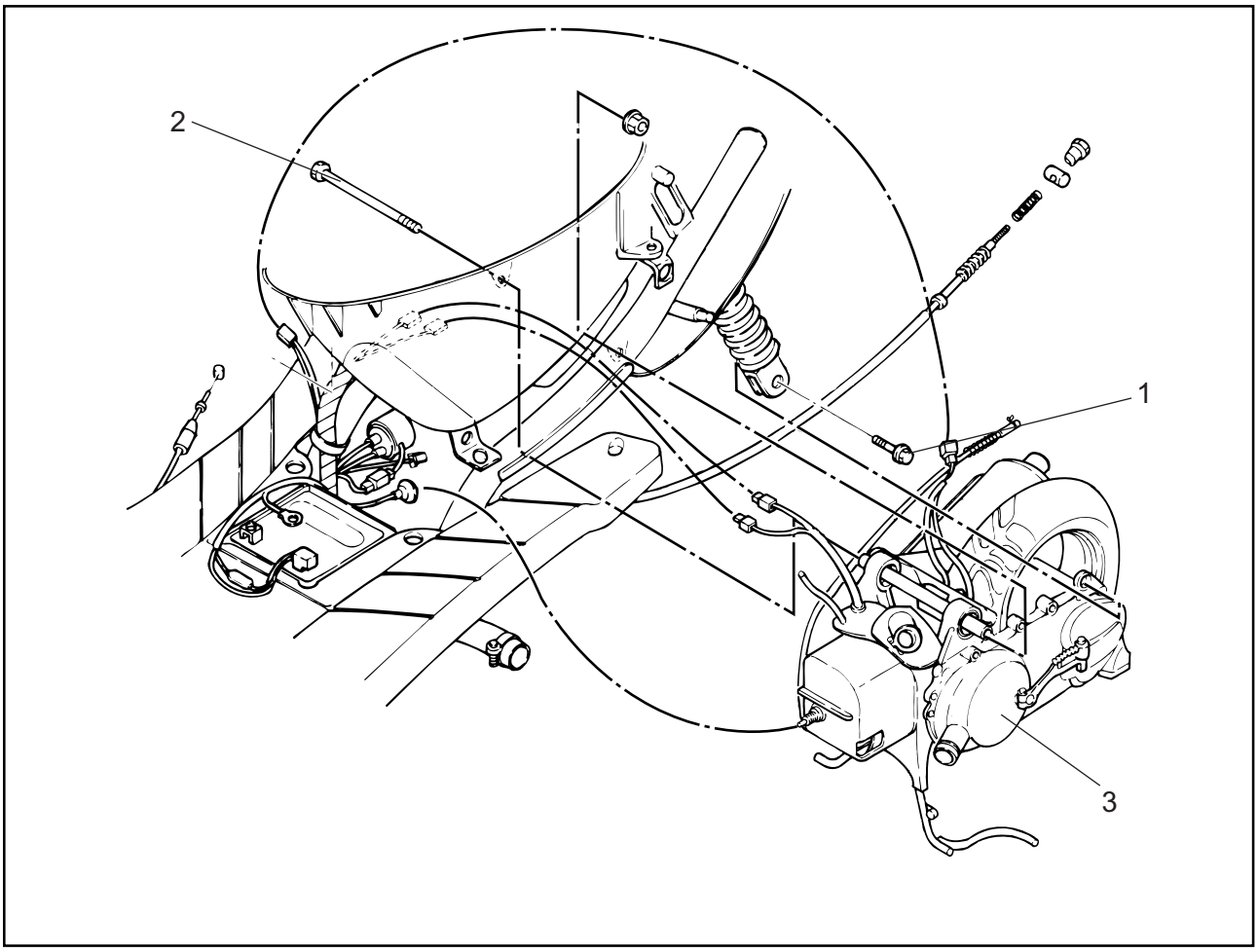
Order	Job/Part	Q'ty	Remarks
7	Starter motor lead coupler	1	
III	Untighten :		
8	Rear wheel nut	1	**Note:** Loosen the rear wheel nut.
IV	Remove :		
9	Rear brake adjuster	1	
10	Rear brake cable	1	
11	Pin	1	
			For installation, reverse the removal procedure.

EXHAUST PIPE



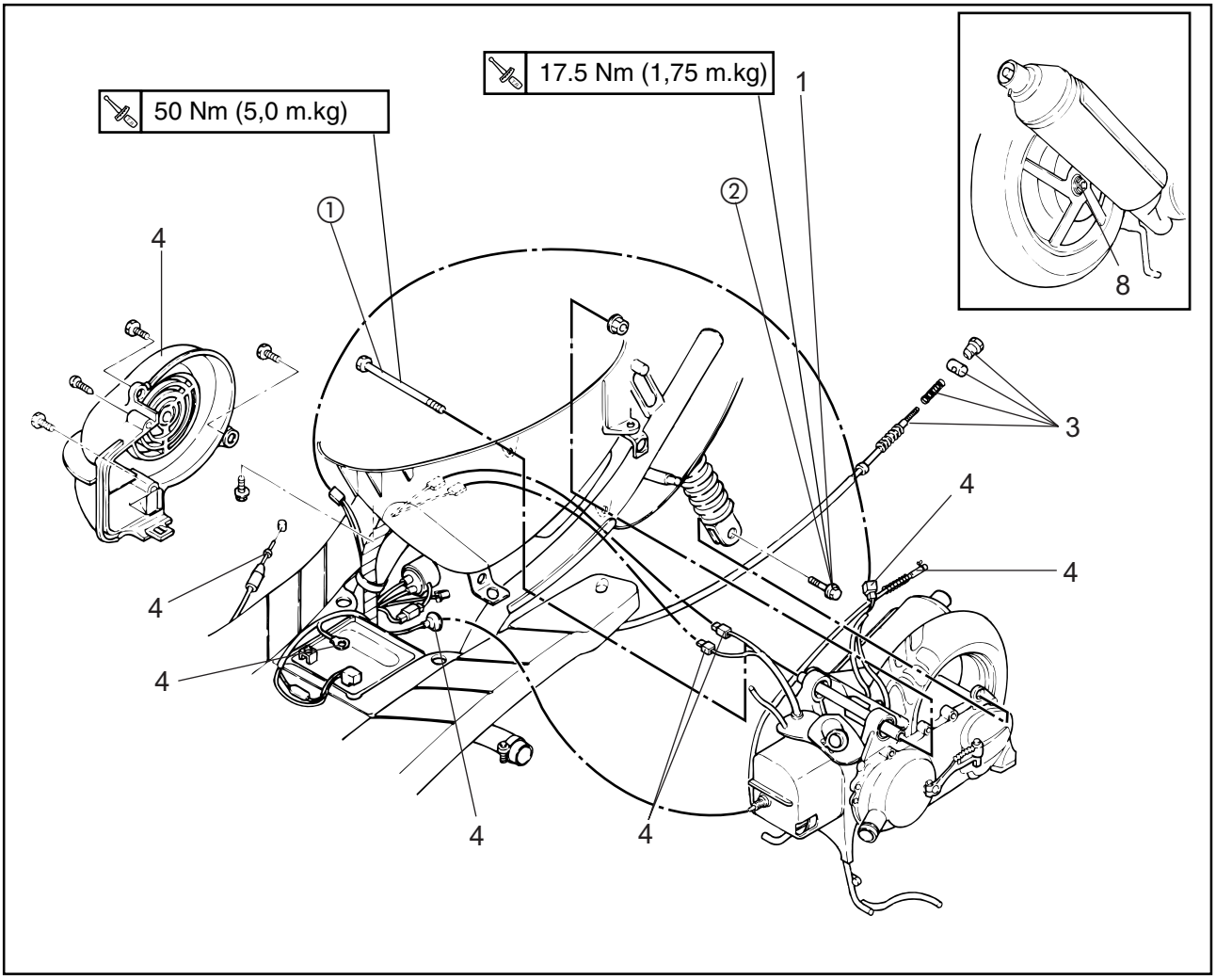
Order	Job/Part	Q'ty	Remarks
	Removing the exhaust pipe		Remove the parts in the order listed.
	Lower cover		Refer to "BATTERY COVER AND LOWER COVER" in chapter 3.
I	Untighten:		
	Bolt (from cylinder)	2	
II	Remove:		
1	Gasket	1	
2	Bolt	2	
3	Spacer/damper	1/1	
III	Remove:		
4	Bolt (from cylinder)	2	
5	Exhaust pipe	1	
			For installation, reverse the removal procedure.

EAS00192
ENGINE



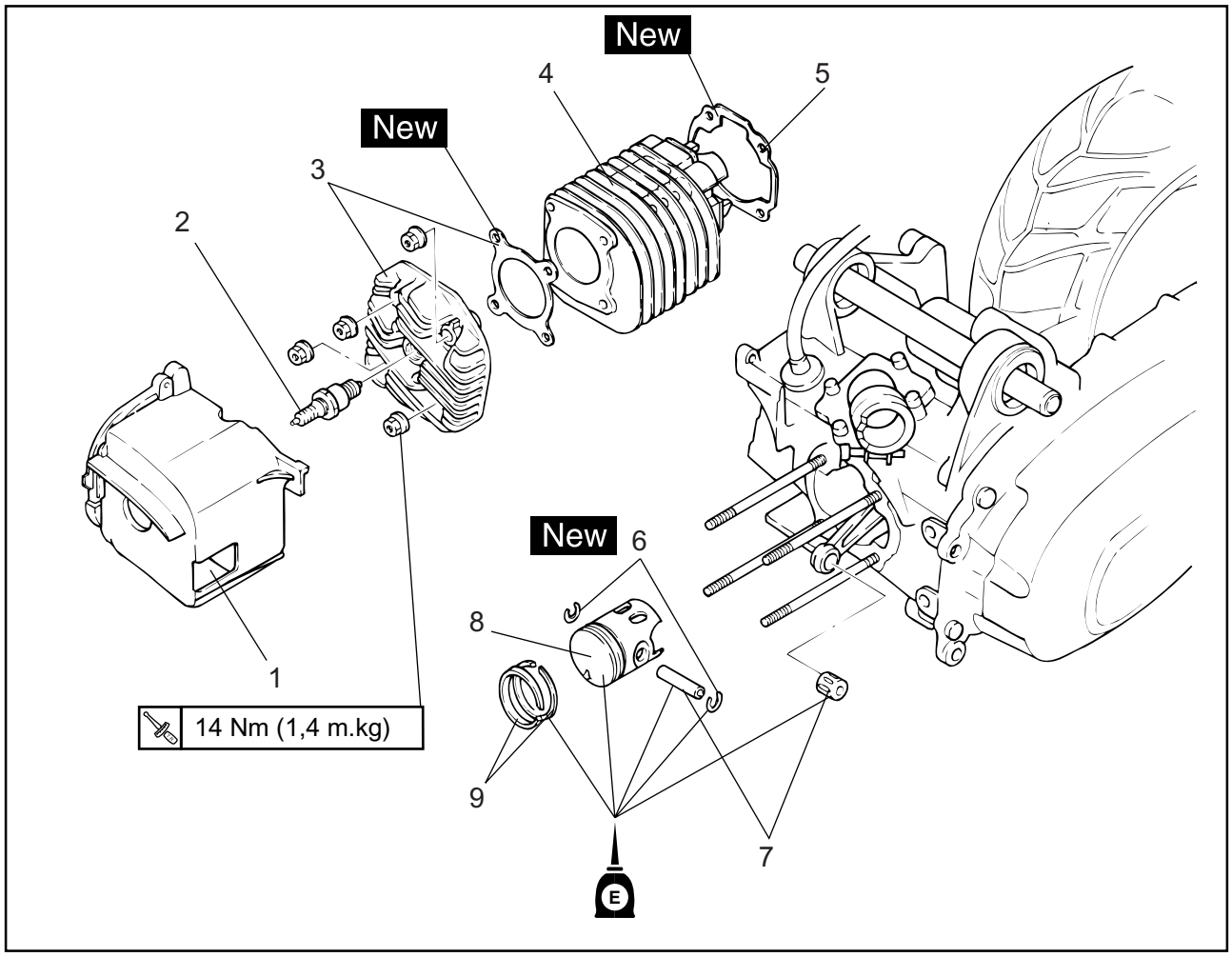
Order	Job/Part	Q'ty	Remarks
	Removing the engine		Remove the parts in the order listed.
	Leads and hoses		**NOTE:**
	Exhaust pipe		Place a suitable stand under the frame and engine.
I	Remove:		
1	• Rear shock absorber bolt (lower)	1	
2	• Engine mounting bolt	1	
II	Remove:		
3	• Engine	1	Refer to "INSTALLING THE ENGINE".
			For installation, reverse the removal procedure.

EAS00192
INSTALLING THE ENGINE

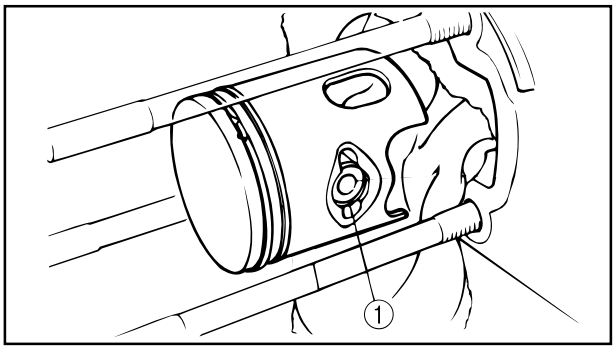


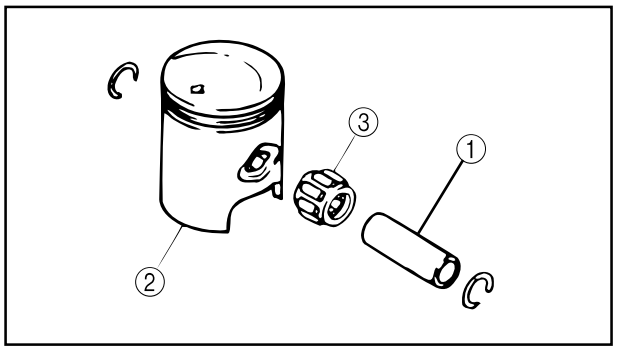
Order	Job/Part	Q'ty	Remarks
I.	Install:		
	Engine mounting bolt ①	1	
	Rear shock absorber bolt (lower) ②	1	**NOTE:** Do not fully tighten the bolts.
II.	Tighten the bolts in the following order.		
1	Rear shock absorber bolt	1	17.5 Nm (1.75 m•kg)
2	Engine mounting bolt	1	50 Nm (5.0 m•kg)
III.	Install:		
3	Rear brake cable		
4	Leads and hoses		Refer to "ENGINE (LEADS AND HOSES)"

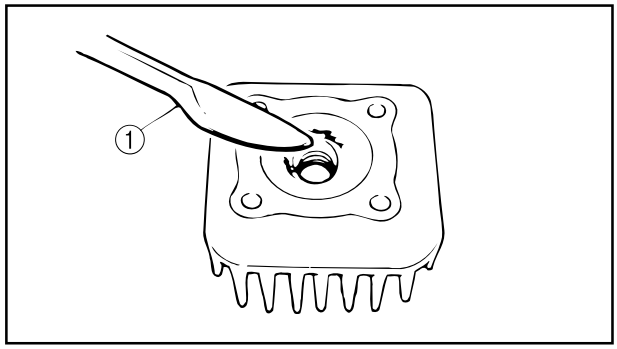
EAS00222
CYLINDER HEAD, CYLINDER AND PISTON

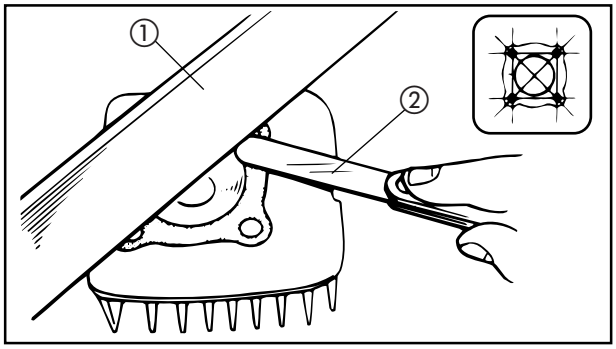


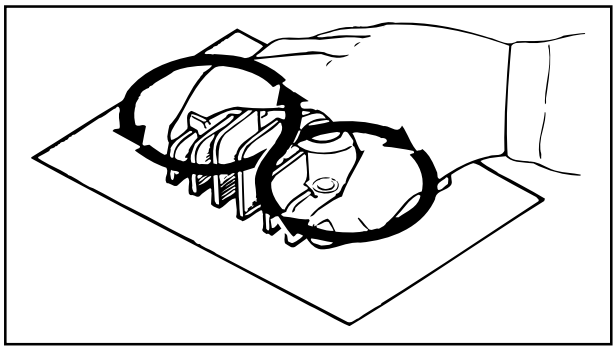
Order	Job/Part	Q'ty	Remarks
	Removing the cylinder head and piston		Remove the parts in the order listed.
	Lower cover		Refer to "BATTERY COVER AND LOWER COVER" in chapter 3.
	Exhaust pipe		Refer to "EXHAUST PIPE".
I	Remove :		
1	Air shroud (cylinder head)	1	
2	Spark plug	1	
3	Cylinder head/ Cylinder head gasket	1/1	
4	Cylinder	1	
5	Cylinder gasket	1	
6	Piston pin clip	2	
7	Piston pin/Piston bearing	1/1	
8	Piston	1	
9	Piston rings	2	
			For installation, reverse the removal procedure.











PISTON PIN AND PISTON REMOVAL

1. Remove:
   • Piston pin clip ①

NOTE:

Before removing the piston pin clip, cover the crankcase with a clean rag so you will not accidentally drop the clip into the crankcase.

2. Remove:
   • Piston pin ①
   • Piston ②
   • Piston pin bearing ③

CAUTION:

Do not use a hammer to drive the piston pin out.

CYLINDER HEAD INSPECTION

1. Eliminate:
   • Carbon deposits
   Use a rounded scrapper ①.

2. Inspect:
   • Cylinder head warpage
   Out of specification→Re-surface.

****

Warpage measurement and resurfacement steps:

• Attach a straight edge ① and a thickness gauge ② on the cylinder head.
• Measure the warpage limit.

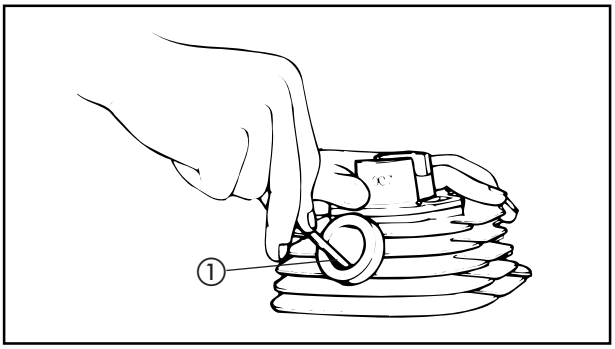
Warpage limit:
0.05 mm

• If the warpage is out of specification, reface the cylinder head.

NOTE:

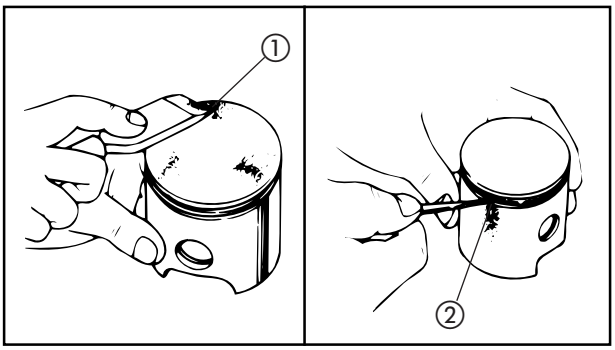
Rotate the head several times to avoid removing too much material from one side.

****

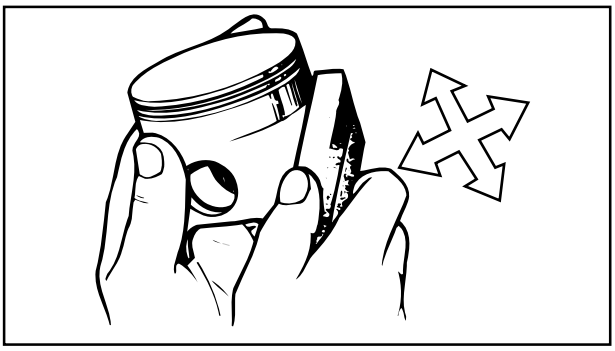


CYLINDER AND PISTON INSPECTION

1. Eliminate :
   • Carbon deposits
   Use a rounded scraper ①.
2. Inspect :
   • Cylinder wall
   Wear/Scratches→Rebore or replace.



3. Eliminate :
   • Carbon deposits ①
   From the piston crown and ring grooves ②.



4. Remove :
   • Score markes and lacquer deposits
   From the sides of piston.
5. Inspect :
   • Piston wall
   Wear/Scratches/Damage→Replace.

6. Measure :
   • Piston-to cylinder clearance

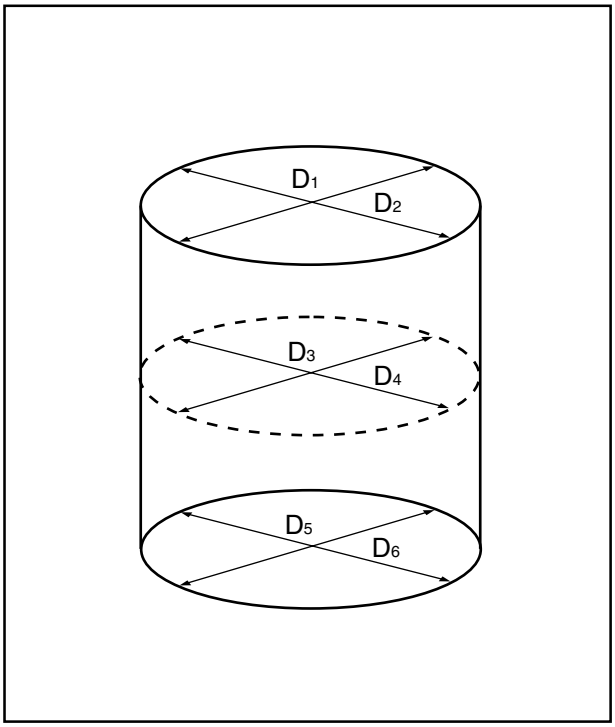
****

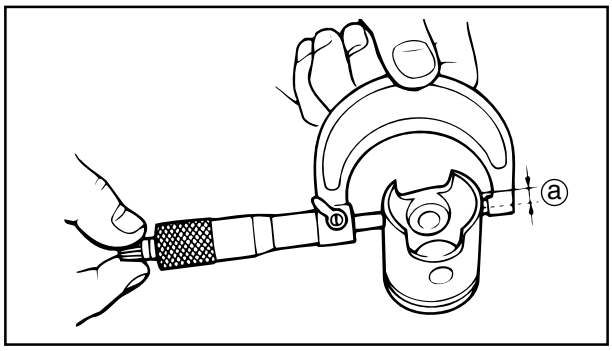
Piston to cylinder clearance measurement steps: First step:

• Measure the cylinder bore “C” with a cylinder bore gauge.

NOTE:

Measure the cylinder bore “C” in parallel to and at right angles to the crankshaft. Then, find the average of the measurements.





	Standard	Wear limit
Cylinder bore "C"	52.002~52.012mm	52.10 mm
Taper "T"	–	0.05 mm
Out of round "R"	–	0.03 mm

C = Maximum D
T=(Maximum D1 or D2) - (Maximum D5 or D6)
R=(Maximum D1 D3 or D5) - (Maximum D2 D4 or D6)

- If out of specification, rebore or replace cylinder, and replace piston and piston rings as a set.

2nd step:

- Measure the piston skirt diameter "p" with a micrometer.
  ⓐ10 mm from the piston bottom edge.

Piston size P	
Standard	51.958~51.967 mm
Oversize 1	52.52 mm
Oversize 2	52.50 mm

- If out of specification, replace piston and piston rings as a set.

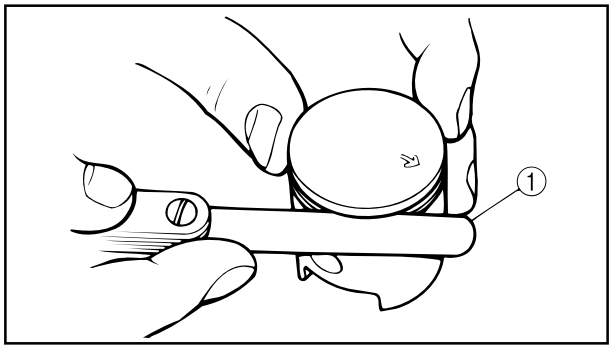
3rd step:

- Calculate the piston-to cylinder clearance with following formula:

Piston-to cylinder clearance =
Cylinder bore " C "- Piston skirt diameter "p"

- If out of specification, rebore or replace cylinder, and replace piston and piston rings as a set.

Piston-to cylinder clearance:
0.044 ~ 0.045mm
Limit : 0.1 mm

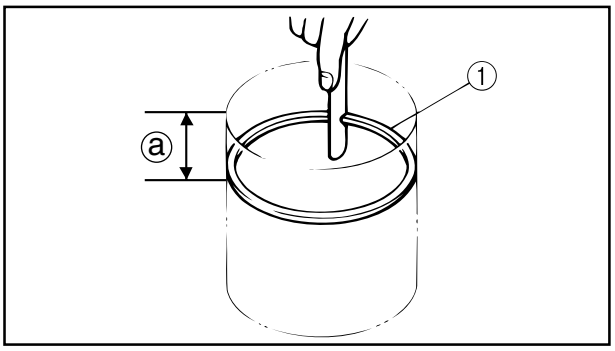


PISTON RINGS INSPECTION

1. Measure:
   • Side clearance
   Out of specification→Replace piston and /or rings.
   Use a feeler gauge ①

	Standard	Limit
Top ring	0.03 ~ 0.05 mm	0.10 mm
2nd ring	0.03 ~ 0.05 mm	0.10 mm

2. Install :
   • Piston ring
   Into the cylinder
   Push the ring with the piston crown.



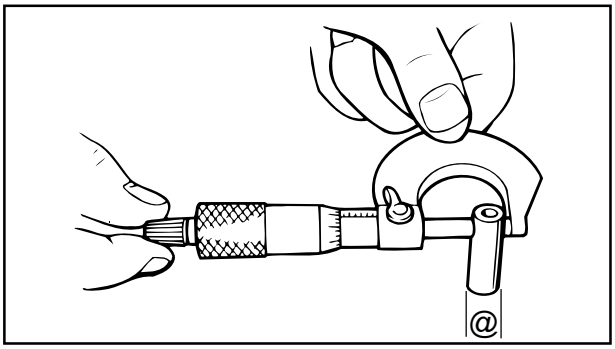
3. Measure :
   • End gap
   Out of specification→Replace rings as a set.
   Use a feeler gauge ①.

	Standard	Limit
Top ring	0.15 ~ 0.35 mm	0.60 mm
2nd ring	0.15 ~ 0.35 mm	0.60 mm

ⓐMeasuring Point 20 mm

PISTON PIN AND PISTON PIN BEARING INSPECTION

1. Inspect :
   • Piston pin
   Blue discoloration/GrooveÆReplace, then inspect lubrication system.



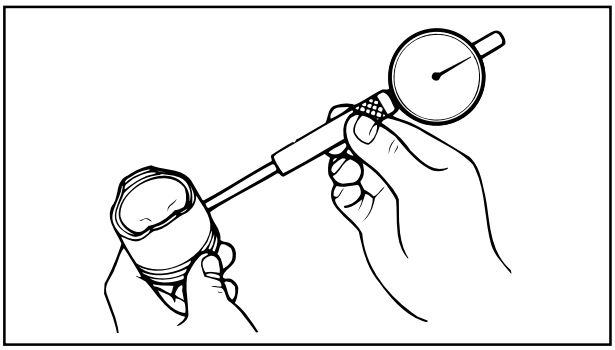
2. Measure :
   • Outside diameter @ (piston pin)
   Out of specification→Replace.

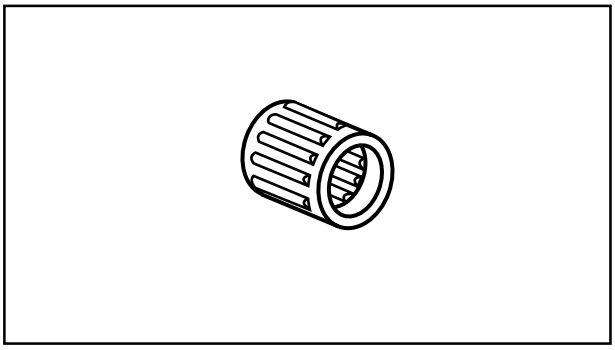
Outside diameter (piston pin) :
13.996~14.000 mm

3. Measure:
   • Piston pin-to-piston clearance
   Out of specification→Replace piston.

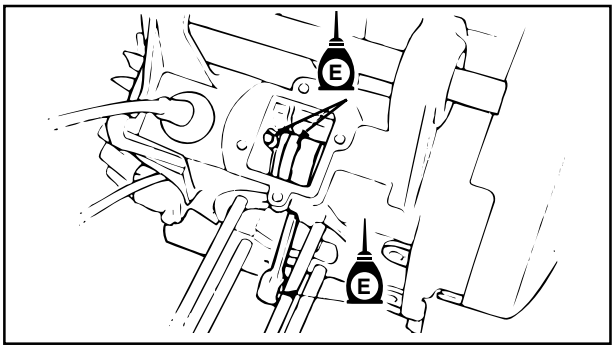
Piston pin-to-piston clearance =
Bore size (piston pin)
Outside diameter (piston pin)

Piston pin-to-piston clearance :
0.004~0.019 mm





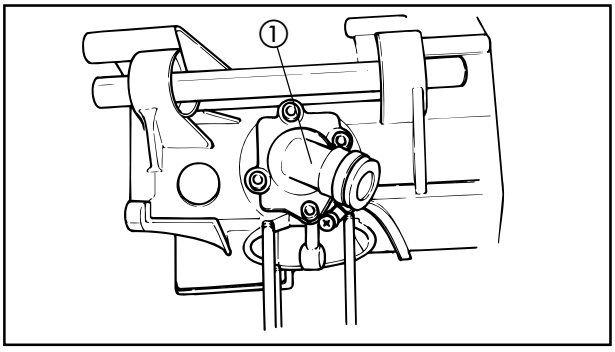
4. Inspect :
   • Bearing(piston pin)
   Pitting/Damage→Replace.



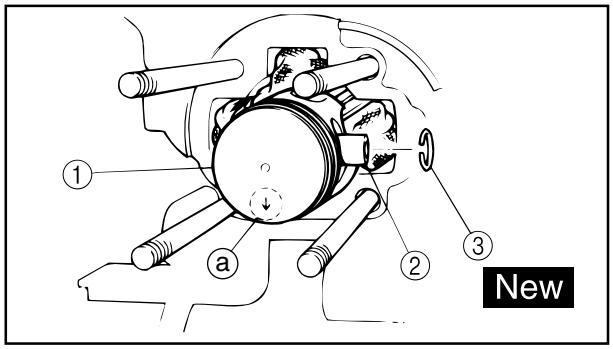
PISTON PIN AND PISTON INSTALLATION

1. Apply :
   • Engine oil

(to the crankshaft bearing, connecting rod big end bearing, small end bearing, piston pin, piston ring grooves and piston skirt areas.)

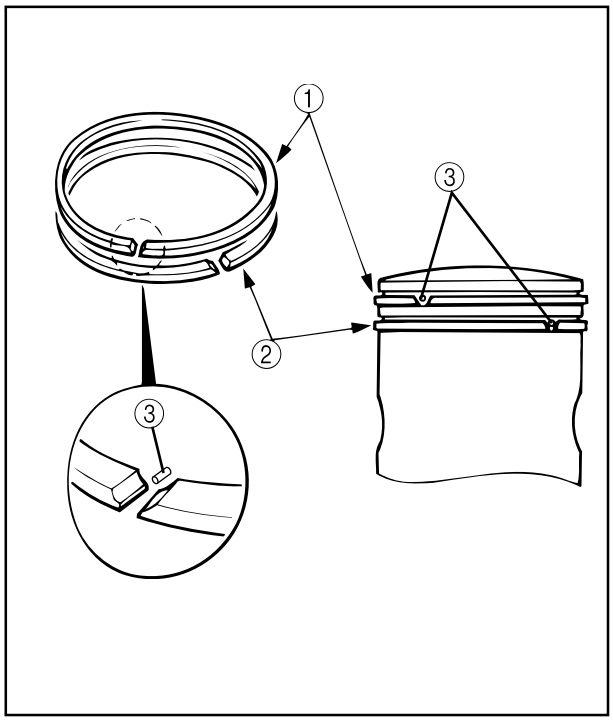


2. Install :
   • Reed valve gasket
   • Reed valve
   • Carburetor joint ① 11Nm(1.1 m.kg)



3. Install :
   • Small end bearing
   • Piston ①
   • Piston pin ②
   • Piston pin clip ③ New

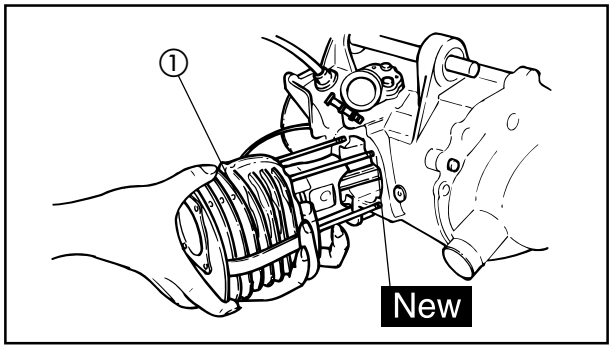
NOTE:
- The arrow ⓐ on the piston to the exhaust side.
- Before installing the piston pin clip, cover the crankcase with a clean towel or rag so you will not accidentally drop the pin clip material into the crankcase.
- Always use a new piston pin clip.



CYLINDER AND CYLINDER HEAD

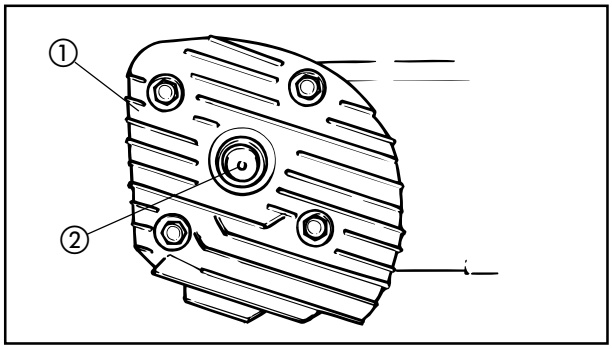
1. Install :
   • Cylinder gasket (new gasket)
2. Check :
   • Piston rings
   ① 1st ring
   ② 2nd ring

NOTE:
Make sure the ring ends ① are properly fitted around the ring locating pins ③ in the piston grooves.



3. Install :
   • Cylinder ①

NOTE:
Install the cylinder with one hand while compressing the piston rings with the other hand.



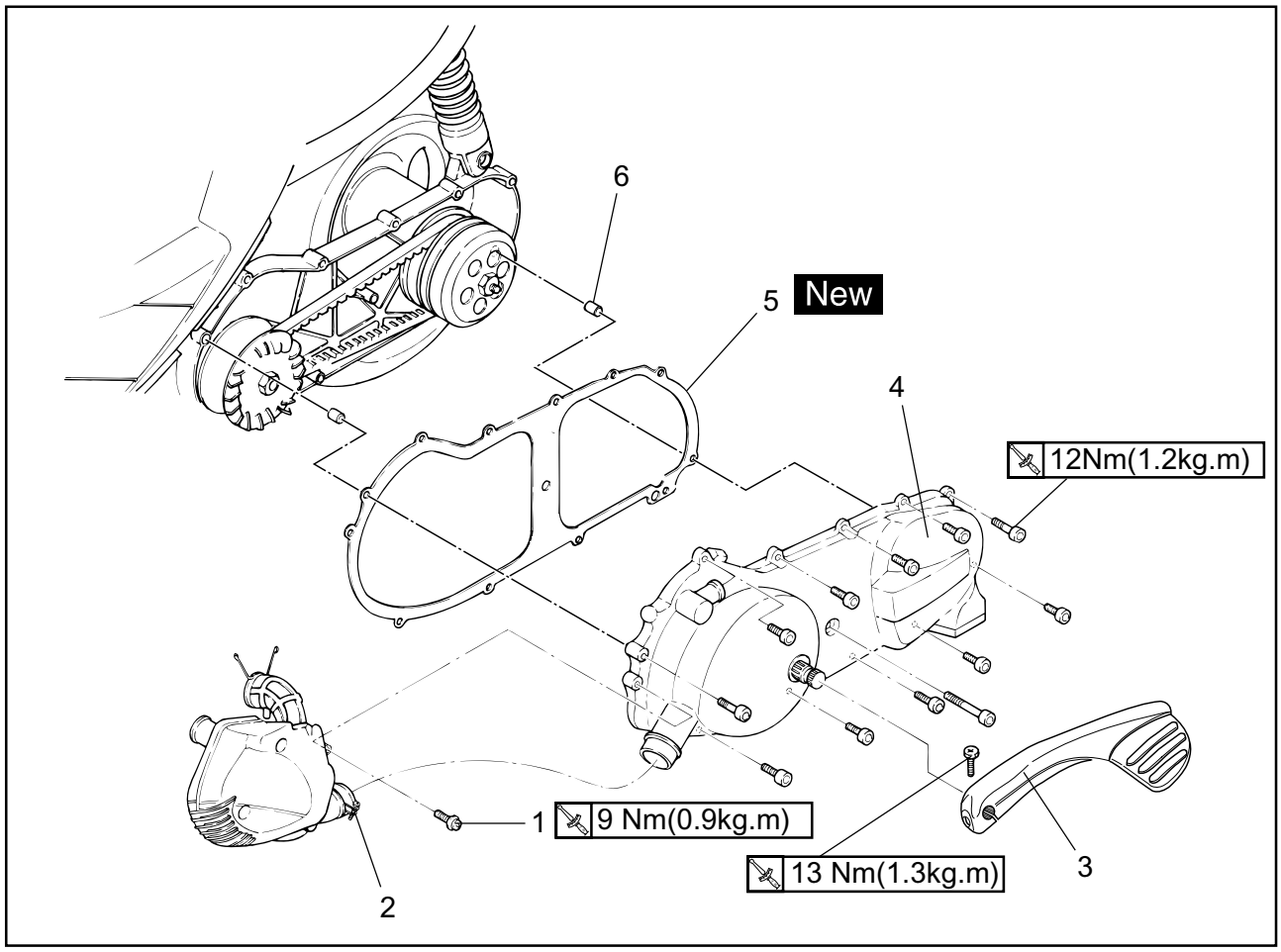
4. Install :
   • Cylinder head gasket (new gasket)
5. Install :
   • Cylinder head ①
   • Spark plug ②
   • Air shroud

	14Nm(1.4m.kg)
	20Nm(2.0m.kg)

NOTE:
Tighten the cylinder head holding nuts in stage, using a crisscross pattern.

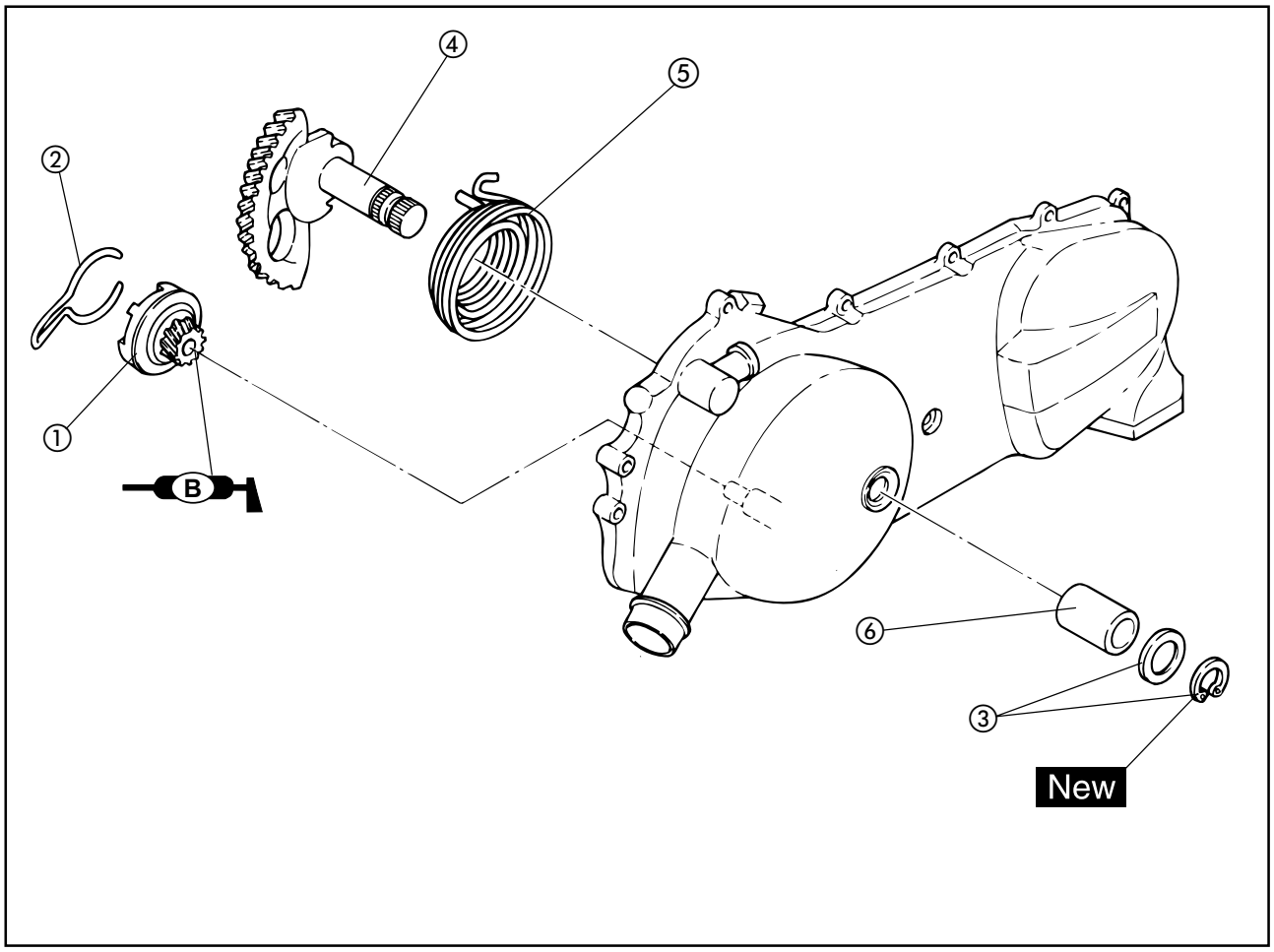
V-BELT, CLUTCH AND SECONDARY/PRIMARY SHEAVE

CRANKCASE COVER (LEFT)

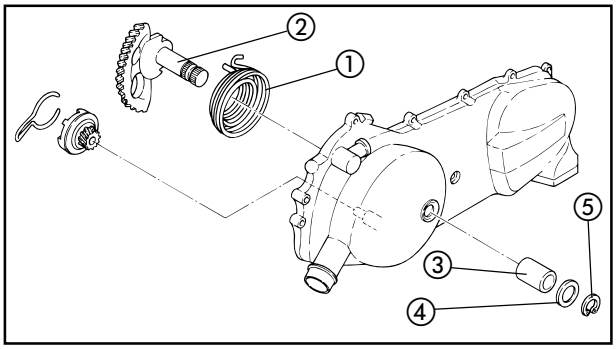


Order	Job name/Part name	Q'ty	Remarks
	Crankcase cover (left) removal		Remove the parts in order.
1	Air cleaner assembly mounting screw	1	
2	Screw(Bind)	1	
3	Kick starter	1	
4	Crankcase (left)	1	
5	Gasket	1	
6	Pin	2	
			Reverse the removal procedure for installation.

KICK STARTER



Order	Job name/Part name	Q'ty	Remarks
	Kick starter removal		Remove the parts in order.
①	Kickstarter pinion gear	1	
②	Kickstarter pinion gear clip	1	
③	Circlip/Plain washer	1/1	
④	Kick shaft	1	
⑤	Return spring	1	
⑥	Collar	1	
			Reverse the removal procedure for installation.



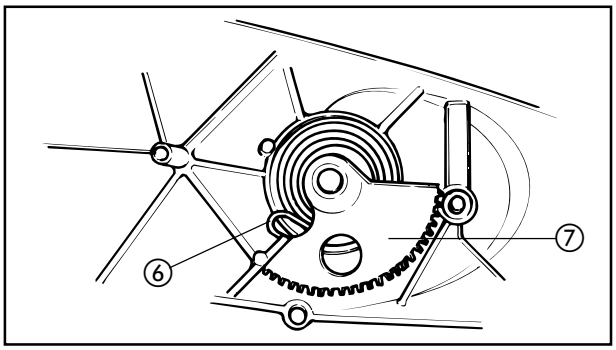
KICK STARTER INSTALLATION

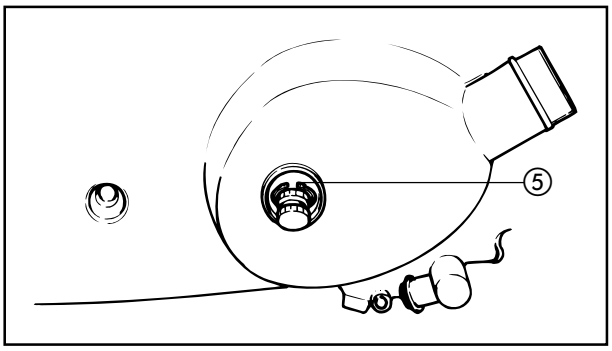
1. Install :
   - Return spring ①
   - Kick shaft ②
   - Collar ③
   - Plain washer ④
   - Circlip ⑤

****

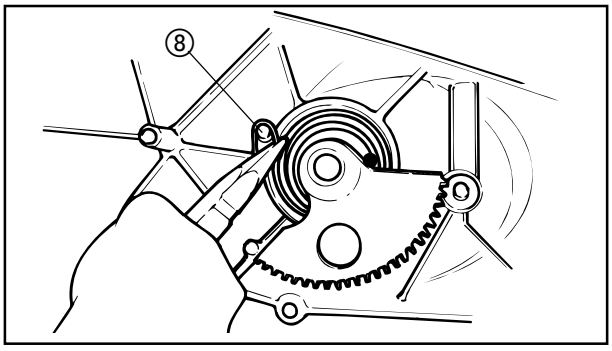
Installation steps :

a. Install return spring ⑥ and kick shaft ⑦ as shown.

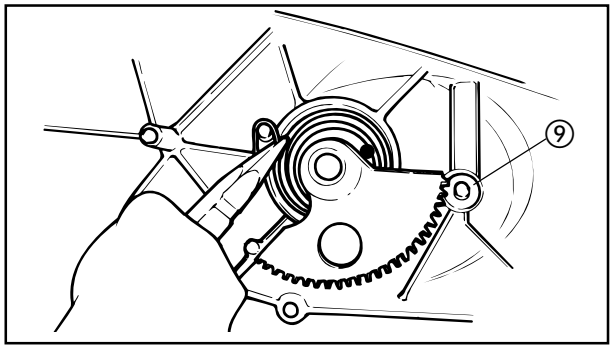




b. Install collar, plain washer and clip ⑤.



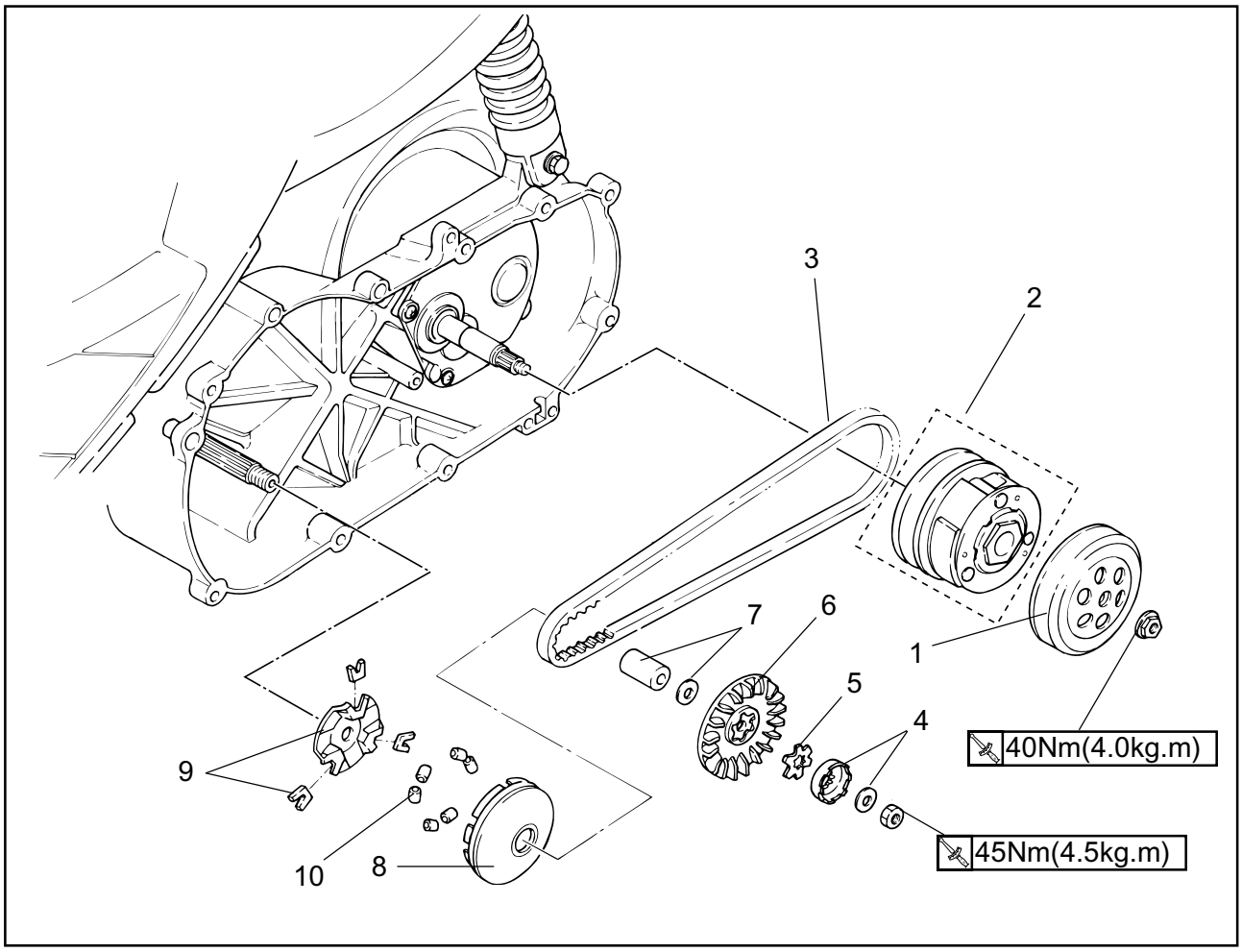
c. Hook the spring onto the crankcase projection ⑧.



d. Install the kick starter pinion gear ⑨ and the kick starter.

****

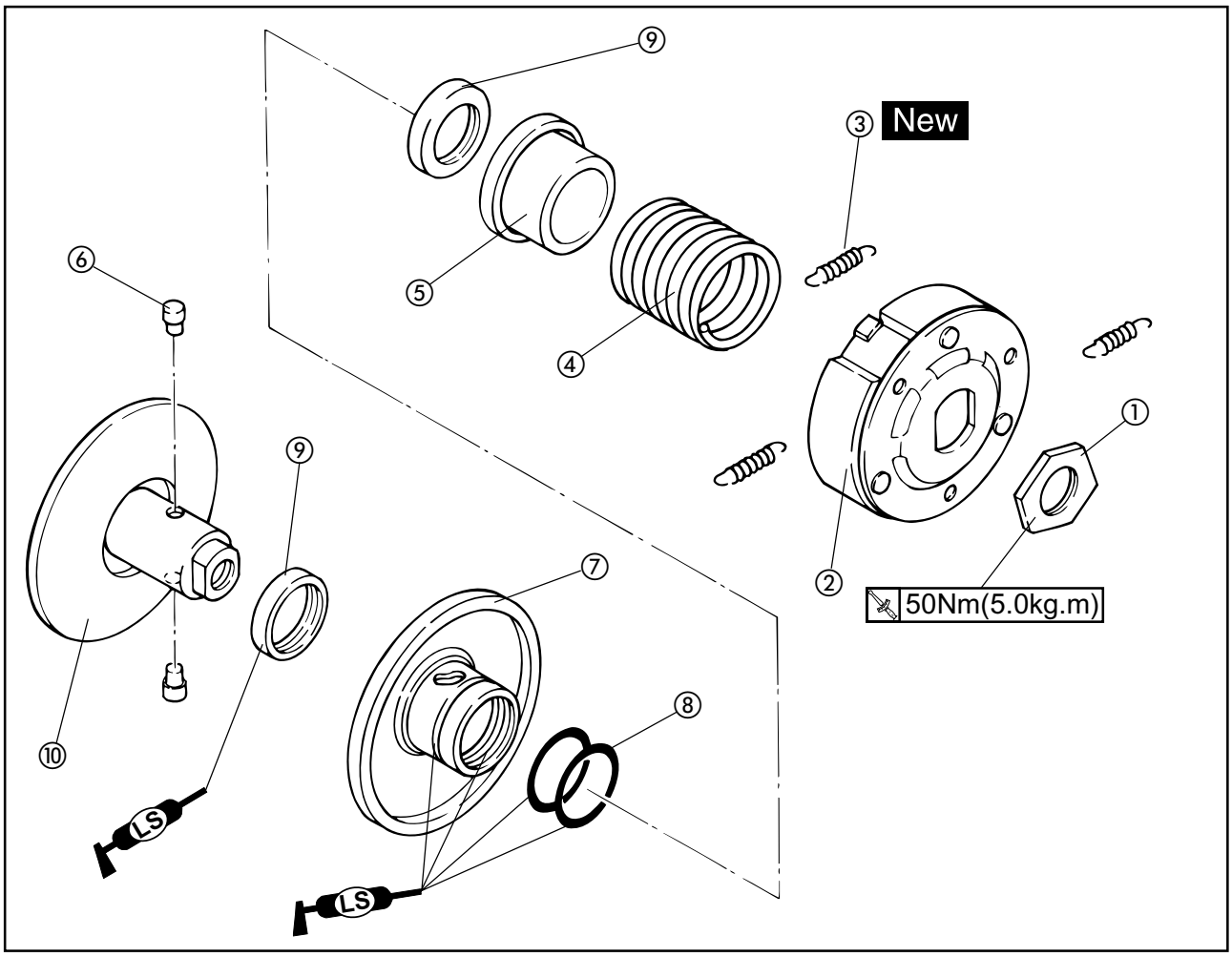
V-BELT, CLUTCH AND SECONDARY/PRIMARY SHEAVE



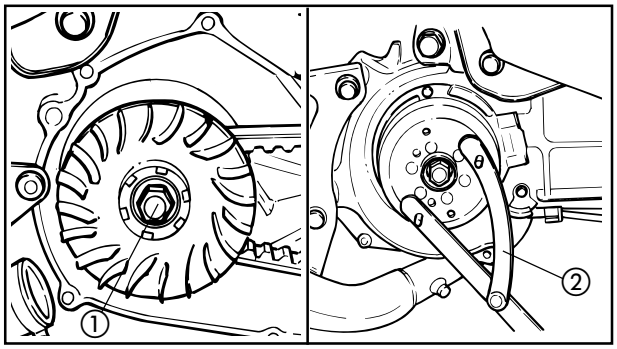
Order	Job name/Part name	Q'ty	Remarks
	V-belt, clutch and secondary/primary sheave removal		Remove the parts in order.
	Lower rear cover		Refer to "BATTERY COVER AND LOWER COVER" section in chapter 3.
	Air shroud 3		
	Crankcase (left)		Refer to "CRANCKCASE COVER" section.
1	Clutch housing	1	Refer to "SECONDARY SHEAVE REMOVAL " section.
2	Secondary sheave assembly	1	
3	V-belt	1	
4	Conical washer/One-way clutch	1/1	Refer to "PRIMARY SHEAVE REMOVAL INSTALLATION" section.
5	Crow washer	1	
6	Primary fixed sheave	1	
7	Collar/Washer	1/1	
8	Primary sliding sheave	1	
9	Cam/ Slider	1/3	
10	Weight	6	
			Reverse the removal procedure for installation

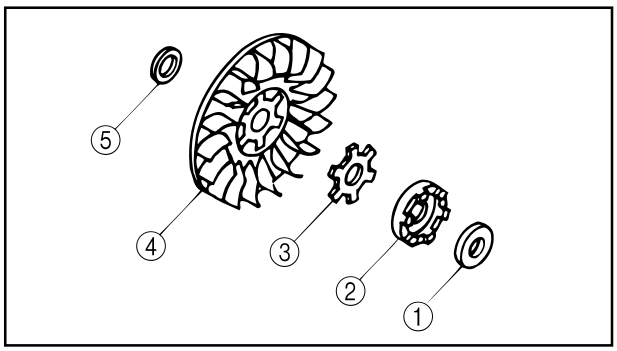
SECONDARY SHEAVE

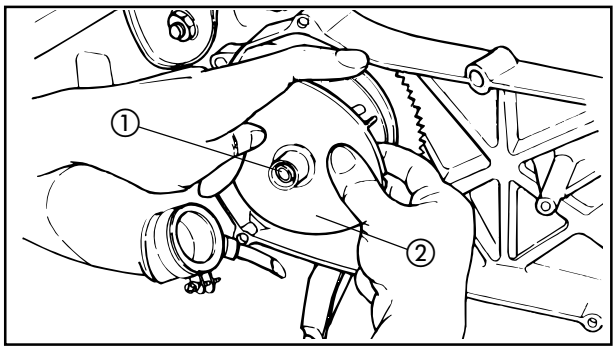
SECONDARY SHEAVE

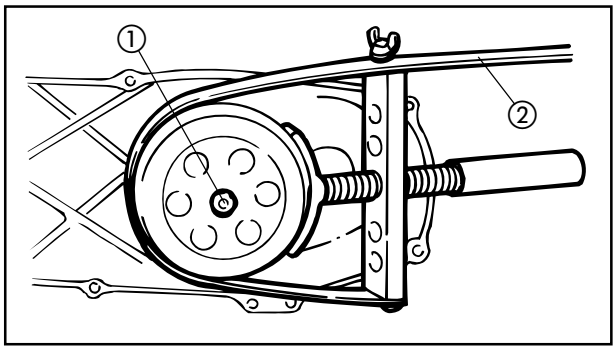


Order	Job name/Part name	Q'ty	Remarks
	Secondary sheave disassembly		Disassemble the parts in order.
①	Nut	1	
②	Clutch carrier	1	
③	Clutch shoe spring	3	Refer to "SECONDARY SHEAVE INSTALLATION" section.
④	Compression spring	1	
⑤	Spring seat	1	
⑥	Guide pin	2	
⑦	Secondary sliding sheave	1	
⑧	O-ring	2	Refer to "SECONDARY SHEAVE INSTALLATION" section.
⑨	Oil seal	2	
⑩	Secondary fixed sheave	1	
			Reverse the disassembly procedure for assembly.









PRIMARY SHEAVE REMOVAL

1. Remove :
   • Fan
2. Remove :
   • Nut ① (primary sheave)

NOTE:

When loosening the nut (primary sheave), hold the C.D.I. magneto using flywheel holding tool ②.

	Flywheel holding tool : **90890-01235**

3. Remove :
   • Conical spring washer ①
   • One-way clutch ②
   • Crow washer ③
   • Primary fixed sheave ④
   • Shim ⑤
   • V-Belt
4. Remove :
   • Collar ①
   • Primary sheave assembly ②

SECONDARY SHEAVE REMOVAL

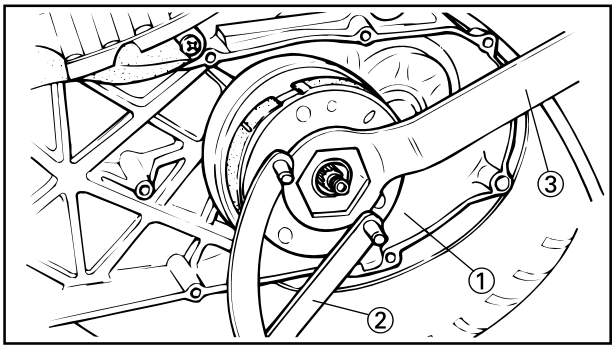
1. Remove :
   • Nut ① (secondary sheave)

NOTE:

Hold the secondary sheave using sheave holder ②.

	Sheave holder : **90890-01701**

2. Remove :
   • Clutch housing
   • Secondary sheave assembly
   • Dowel pins

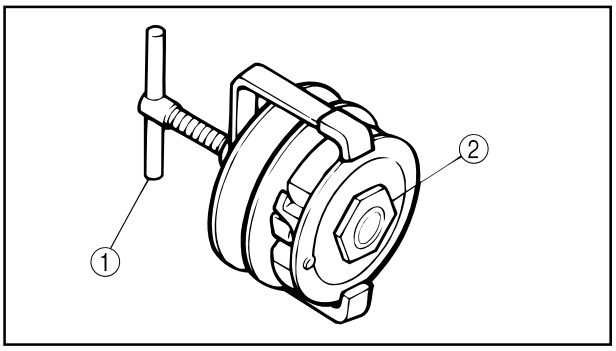


3. Loosen :
   • Nut(Clutch carrier) ①

NOTE:
Install the secondary sheave to primary drive shaft as shown, and hold the secondary sheave by Universal Roter Holder ② to loosen the nut ①.

	Flywheel holding tool : 90890-01235

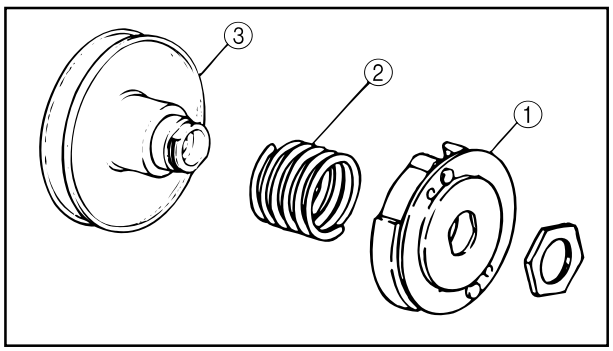
CAUTION:
Do not remove the clutch securing nut yet. If the nut is removed without compressing the secondary sheave, it may jump and cause injury.



4. Attach :
   • Clutch spring holder ①

	Clutch spring holder : 90890-01337

5. Remove :
   • Clutch securing nut ②

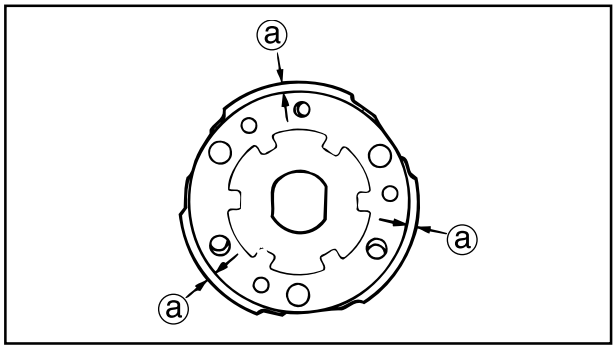


6. Remove:
   • Clutch assembly ①
   • Clutch spring ②
   • Secondary sliding sheave assy' ③
   • Guide pins

CLUTCH INSPECTION

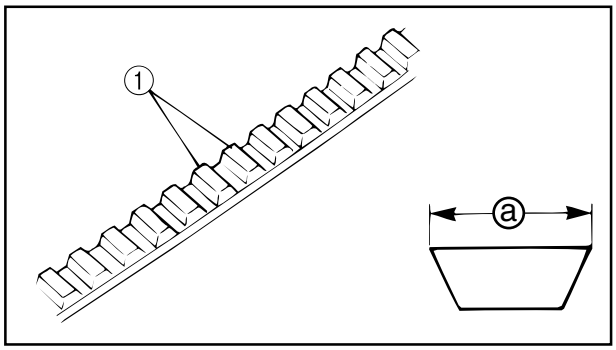
1. Inspect:
   • Clutch shoes
   Glazed parts→Sand with coarse sandpaper.

NOTE:
After using the sand paper, clean of the polished particles with cloth.



2. Measure :
   • Clutch shoe thickness ⓐ
Out of specification→Replace.

Clutch shoe thickness :
4 mm
< Wear limit> :
2.5 mm

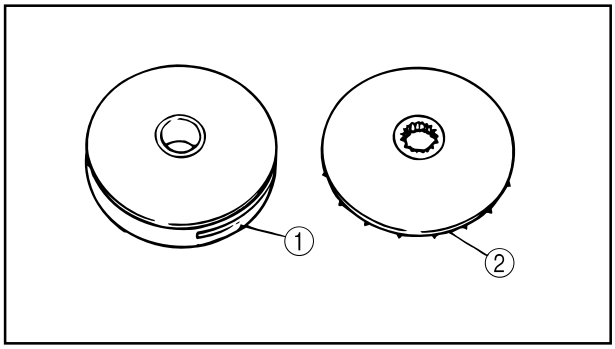


V-BELT INSPECTION
1. Inspect :
   • V-belt ①
Crack→Replace.

NOTE:
Replace the V-belt smeared with a lot of oil or grease.

2. Measure :
   • V-belt width ⓐ
Out of specification→Replace.

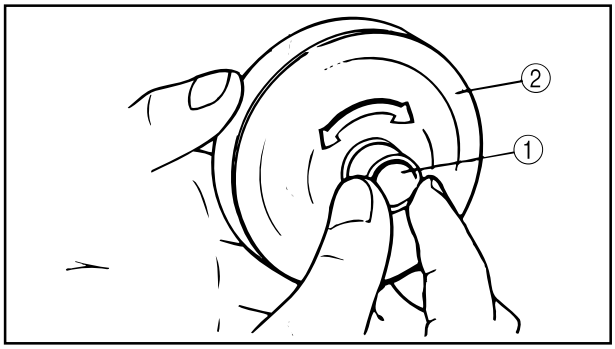
V-belt width :
17.7 mm
<Wear limit> :
16.0 mm



PRIMARY SHEAVE INSPECTION

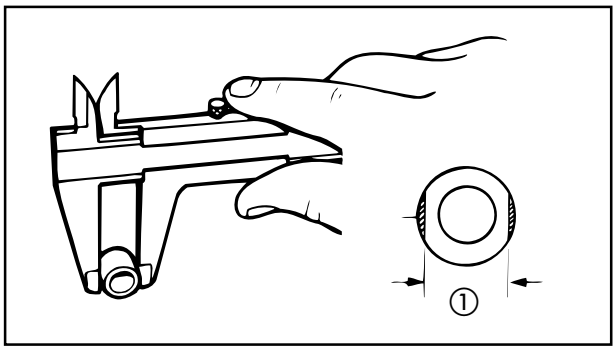
1. Inspect :
   - Primary sliding sheave ①
   - Primary fixed sheave ②

Wear/Cracks/Scratch/Damage
→Replace.



2. Check :
   - Free movement

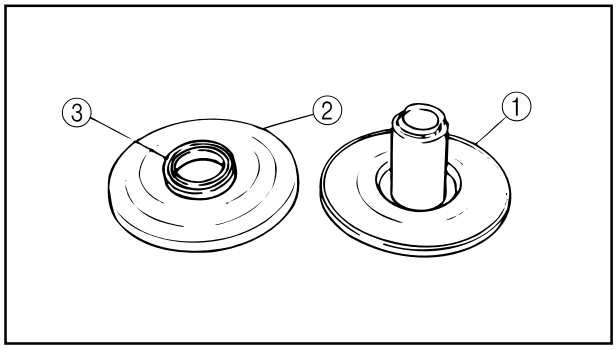
Insert the collar ① into the primary sliding sheave ②, and check for free movement.
Stick or excessive play → Replace the sheave or collar.



3. Measure :
   - Outside diameter ① (weight)

Out of specification → Replace.

Outside diameter (weight)
15.0 mm
<Limit 14.5 mm>

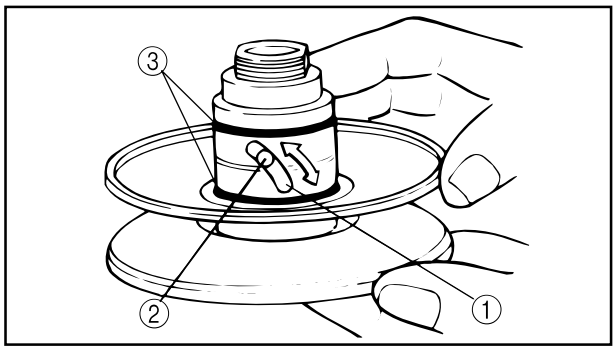


SECONDARY SHEAVE INSPECTION

1. Inspect :
   • Secondary fixed sheave ①
   • Secondary sliding sheave ②

Scratch/Crack/Damage→Replace as a set.
   • Oil seal ③

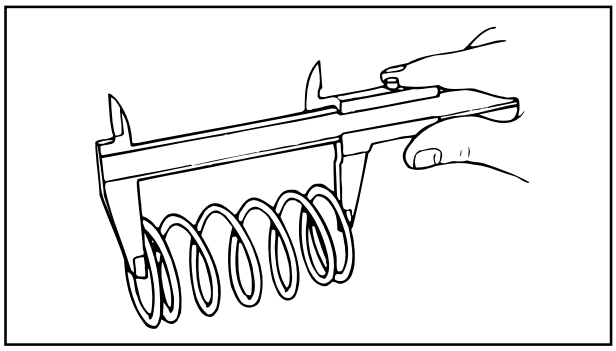
Damage→Replace



2. Inspect :
   • Torque cam grove ①
   • Guide pin ②

Wear/Damage→Replace as a set.
   • O-rings ③

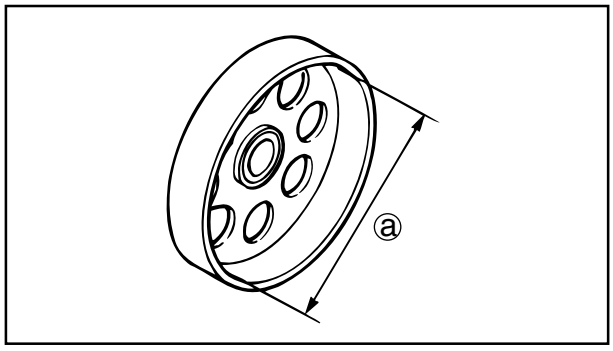
Damage→Replace.



3. Measure :
   • Clutch spring free length

Out of specification→Replace.

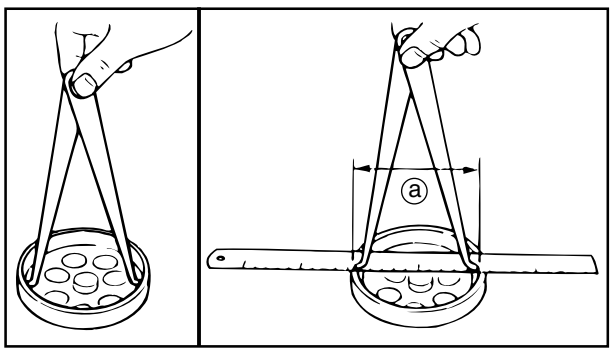
Clutch spring free length :
81 mm
<Limit> :
73 mm



4. Inspect :
   • Clutch housing inner surface

Oil/Scratches→Remove.

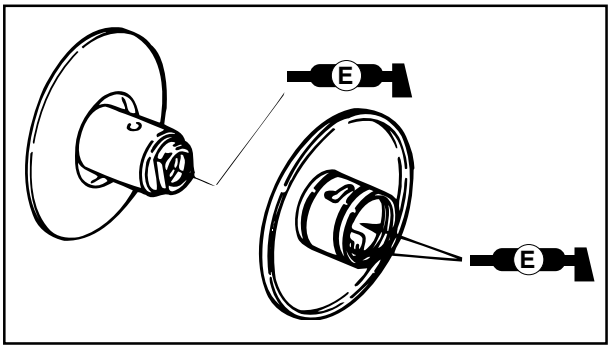
Oil	Use a rag soaked in lacquer thinner or solvent.
Scratches	Use an emery cloth (lightly and evenly polishing).



5. Measure :
   • Clutch housing inside diameterⓐ

Out of specification→Replace.

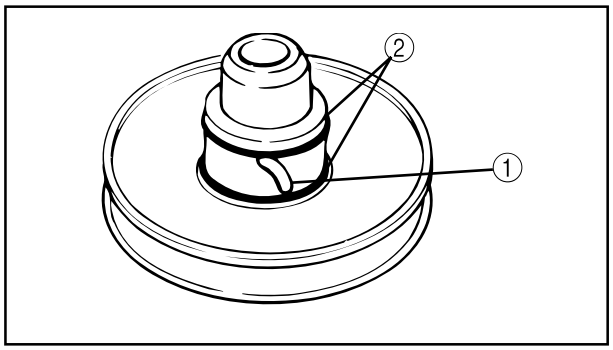
Clutch housing inside diameter :
112.0 mm
<Wear limit> :
112.5 mm



SECONDARY SHEAVE INSTALLATION

When assembling the secondary sheave, reverse the disassembly procedure. Note the following points.

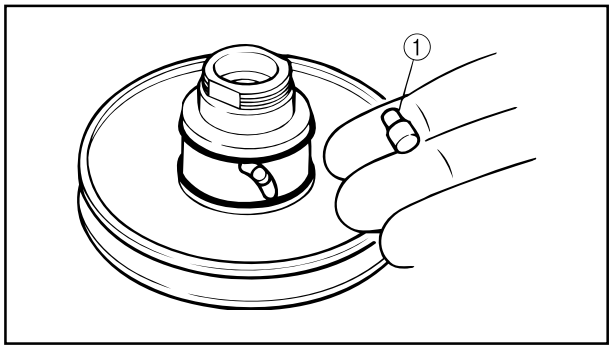
1. Apply :
   • BEL-RAY assembly lube®
   (to the inside of the sliding/fixed sheave)



2. Install :
   • Sliding sheave ①

NOTE:

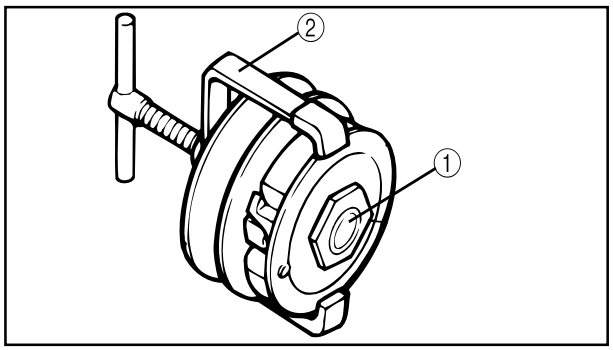
Be careful so that the oil seal ② lips are not turned over when installing the sheave.



3. Apply :
   • BEL-RAY assembly lube®
   (to the torque cam grooves and O-rings)

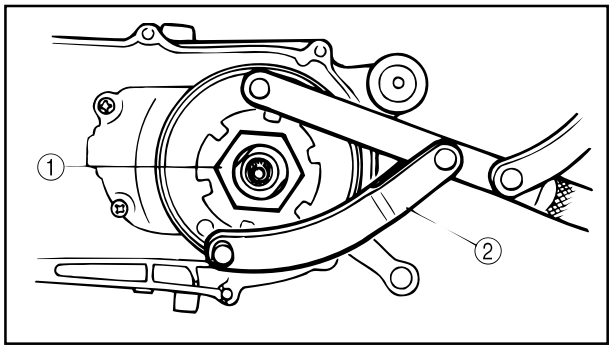
4. Install :
   • Guide pin 1
5. Check :
   • Sliding sheave

Unsmooth operation→Repair.



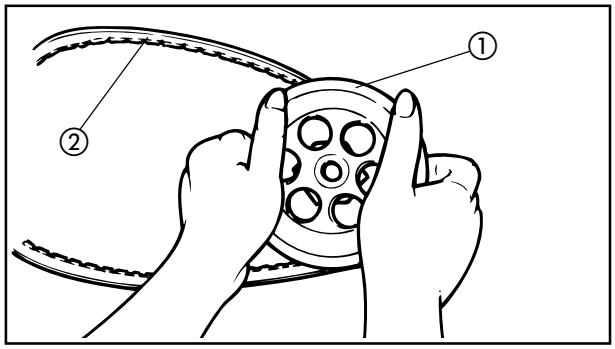
6. Install :
   • Clutch securing nut ①
   Use clutch spring holder ②

	Clutch spring holder : 90890-01337



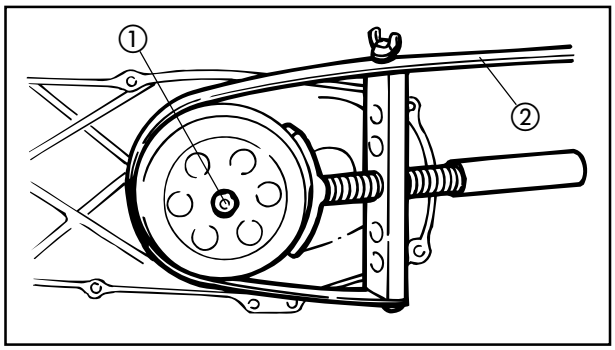
7. Tighten :
   • Clutch securing nut ① | 50 Nm(5.0 m.kg)
   Use Flywheel holding tool ②

	Flywheel holding tool : 90890-01235



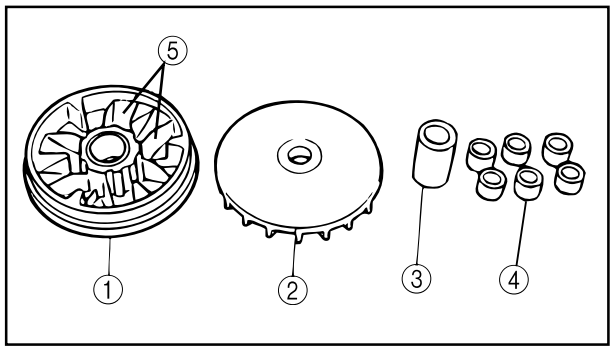
8. Install :
   - Secondary sheave assembly
   - Clutch housing ①
   - V-belt ②

NOTE:
The V-belt must be installed with the arrow frontward.



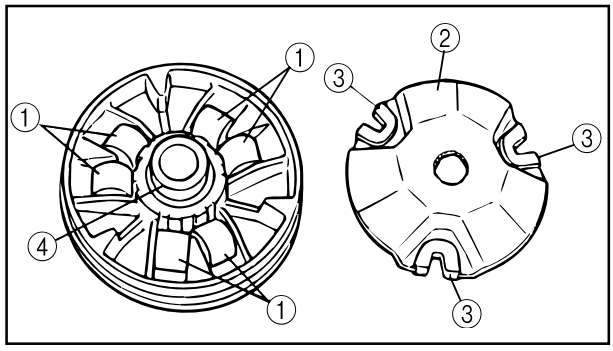
9. Tighten :
   • Nut ①(secondary sheave) 40 Nm(4.0 m.kg)
   Use sheave holder ②

Sheave holder :
90890-01701



PRIMARY SHEAVE INSTALLATION

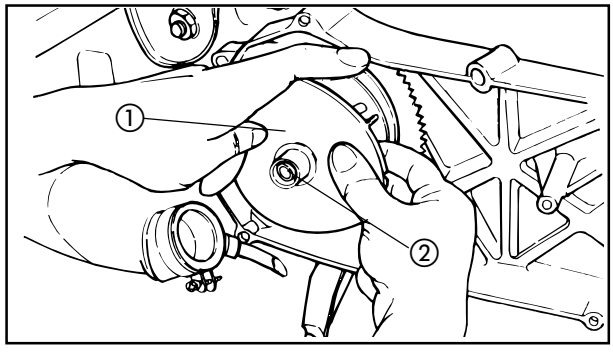
1. Clean :
   - Primary sliding sheave face ①
   - Primary fixed sheave face ②
   - Collar ③
   - Weight ④
   - Primary sliding sheave cam surface ⑤



2. Install :
   - Weight ①
   - Cam ②
   - Slider ③
   - Collar ④

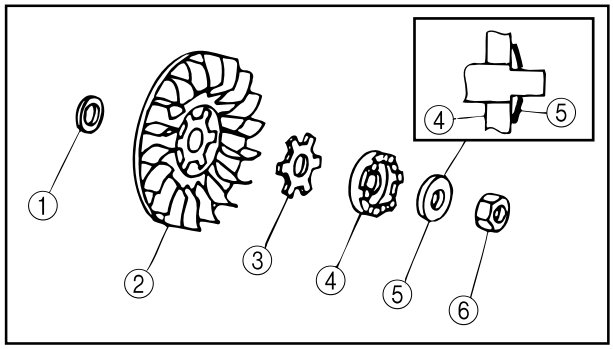
3. Check :
   - Cam operation

Not smooth→Repair.

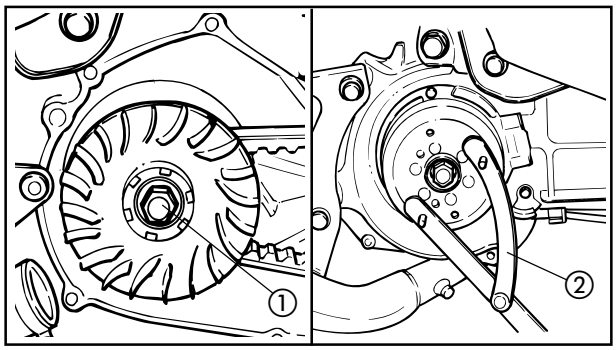


4. Install :
   - Primary sheave assembly ①
   - Collar ②

5. Install :
   - V-belt



6. Install :
   - Shim ①
   - Primary fixed sheave ②
   - Crow washer ③
   - One-way clutch ④
   - Conical spring washer ⑤
   - Nut ⑥



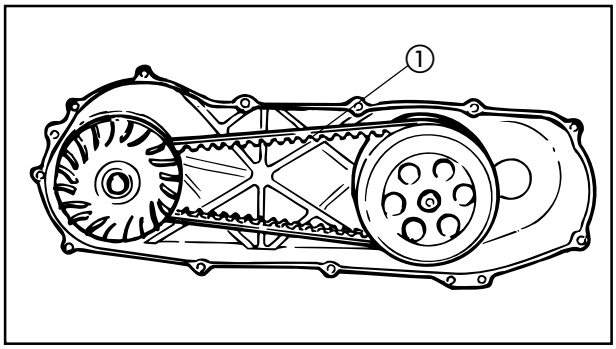
7. Tighten :
   - Nut ① (primary sheave)

	45 Nm(4.5 kg.m)

NOTE:

When tightening the nut (primary sheave), hold the C.D.I. magneto using Flywheel Holding Tool ② .

	Flywheel holding tool : **90890-01235**



8. Adjust :
   - V-belt ①

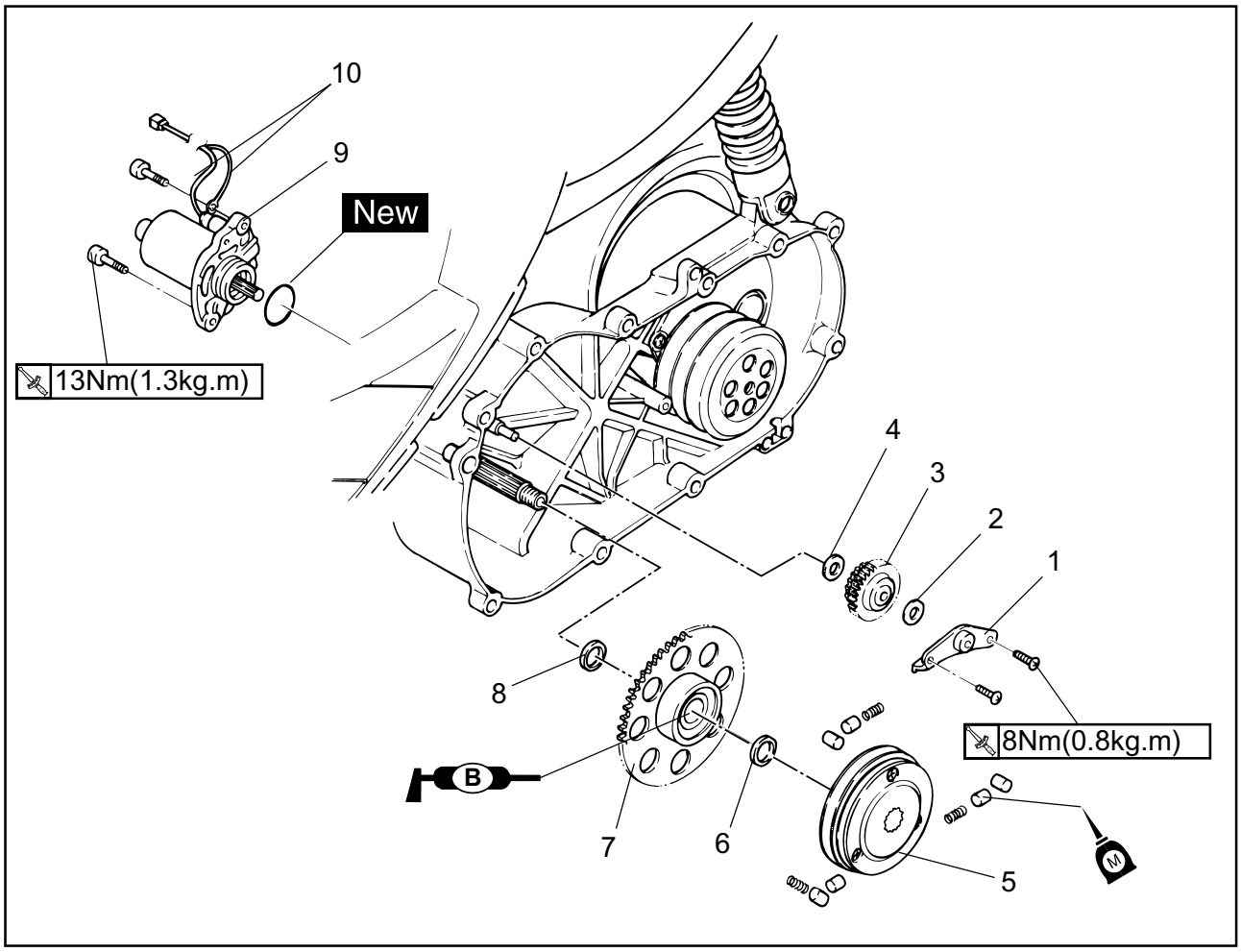
Tense the V-belt by turning the primary sheave several times.

9. Install :
   - Fan

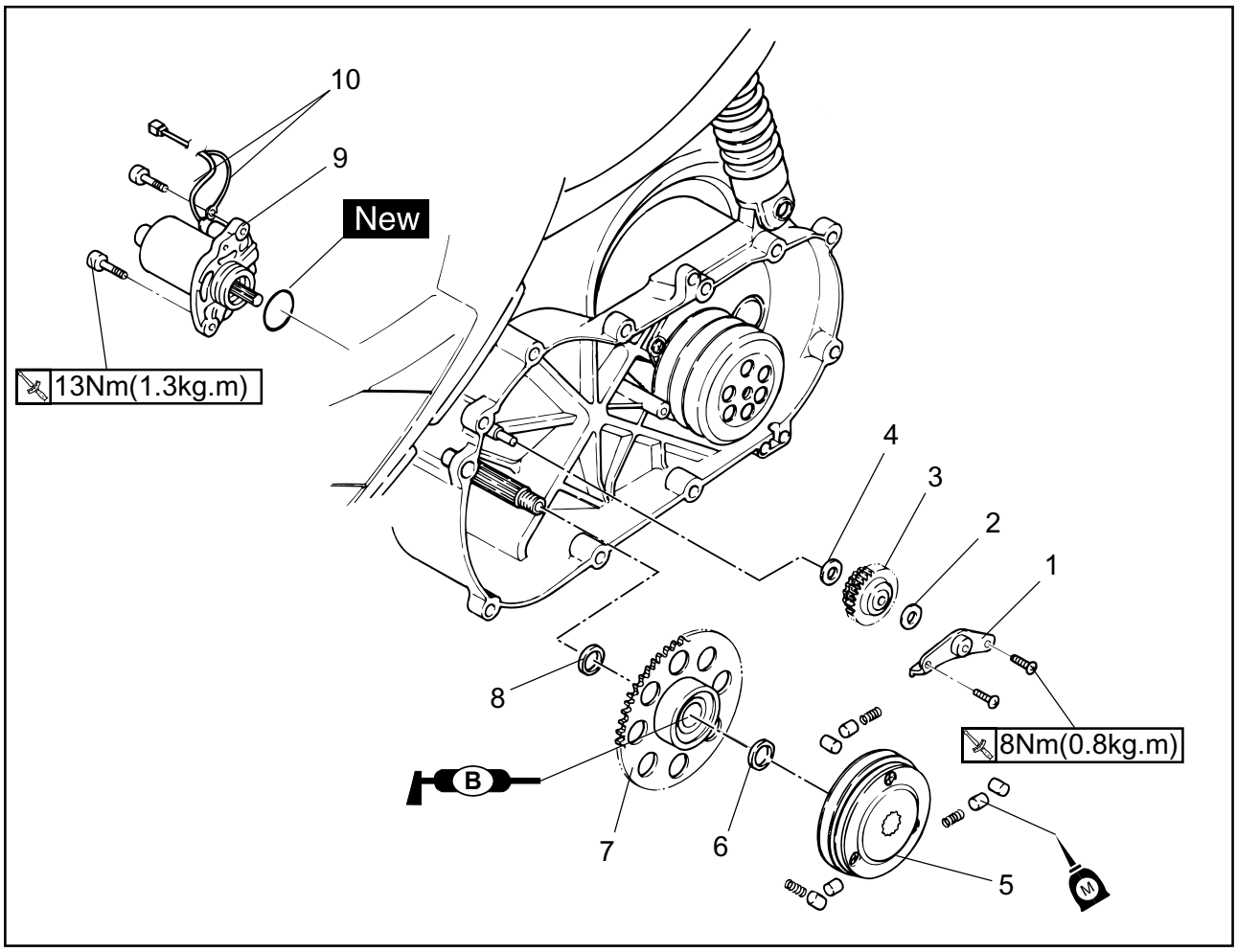
	7 Nm (0.7 kg.m)

STARTER CLUTCH AND STARTER MOTOR

STARTER CLUTCH AND STARTER MOTOR



Order	Job name/Part name	Q'ty	Remarks
	Starter clutch and starter motor removal		Remove the parts in order.
	Left/Right lower side cover Left/right upper side cover Oil cover		Refer to "COVERS" in chapter 3.
	Air shroud 3 Cooling fan		Refer to "C.D.I. MAGNETO " section
	Crankcase cover (left)		Refer to "CRANKCASE COVER (LEFT) " section.
	Primary sheave		Refer to "V-BELT, PRIMARY SHEAVE " section.
1	Plate	1	
2	Plain washer	1	
3	Idle gear	1	
4	Plain washer	1	

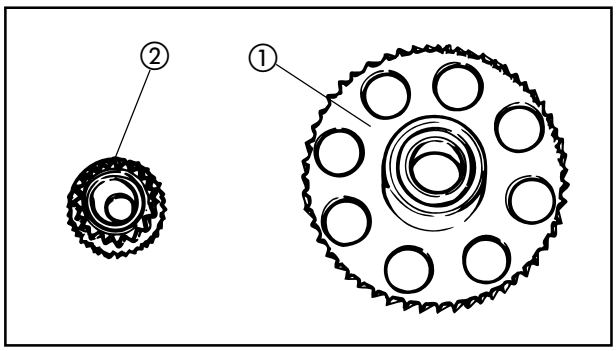


Order	Job name/Part name	Q'ty	Remarks
5	Starter clutch	1	
6	Plain washer	2	
7	Starter wheel gear	1	
8	Collar	1	
9	Starter motor	2	
10	Starter motor connector	1	
			Reverse the removal procedure for instalation

STARTER CLUTCH AND GEARS

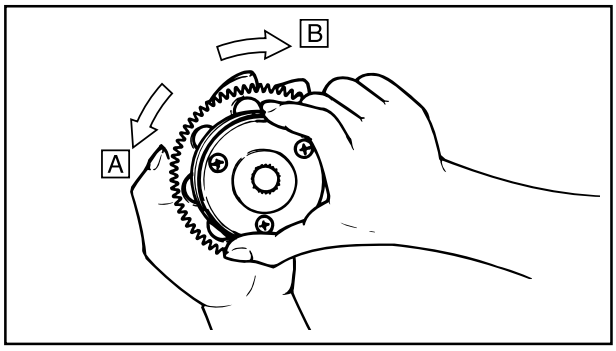
1. Inspect :
   • Starter clutch

Push the dowel pin to arrow direction.
Unsmooth operation→Replace starter clutch assembly.



2. Inspect :
   • Starter wheel gear teeth ①
   • Idle gear teeth ②

Burrs/Chips/Roughness/Wear→Replace.



3. Inspect :
   • Starter clutch operation

****

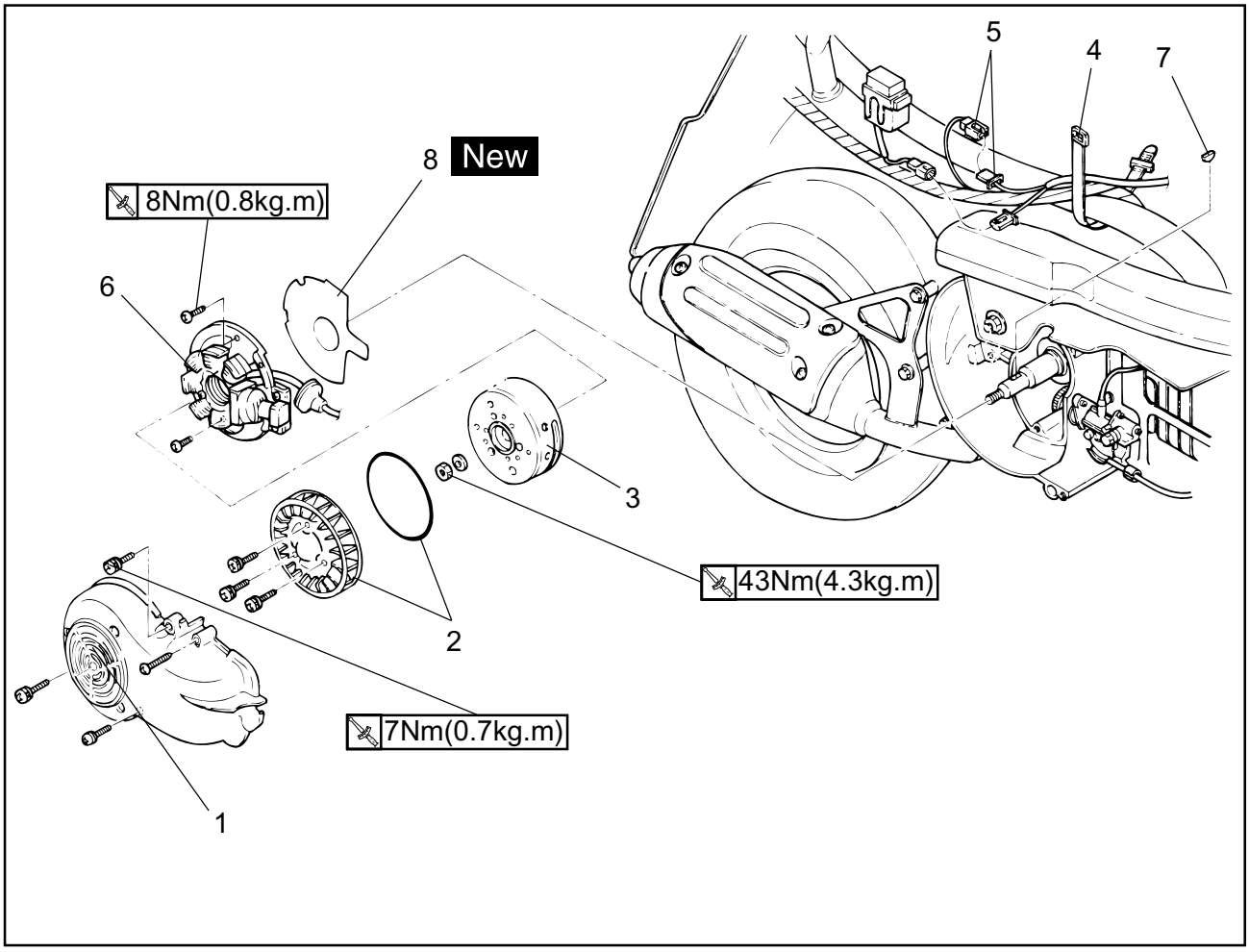
Clutch operation checking steps:

- Install the starter wheel gear to the starter clutch, and hold the starter clutch.
- When turning the wheel gear counter-clockwise A the starter clutch and the wheel gear should be engaged.
  If not the starter clutch is faulty. Replace it.
- When turning the wheel gear clockwise B, the wheel gear should turn freely. If not, the starter clutch is faulty. Replace it.

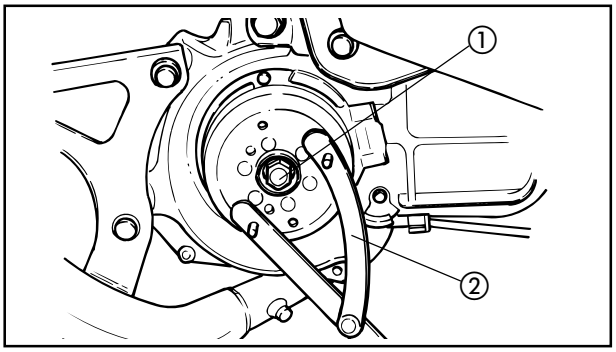
****

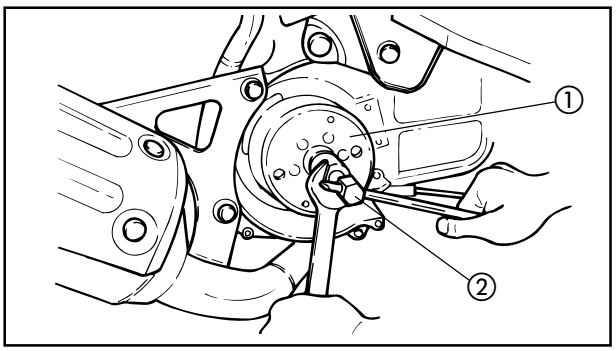
C.D.I. MAGNETO

C.D.I. MAGNETO



Order	Job name/Part name	Q'ty	Remarks
	C.D.I. magneto removal		Remove the parts in order.
	Lower cover		Refer to "BATTERY COVER AND LOWER COVER" section in chapter 3.
	Oil cover		
1	Air shroud 3	1	
2	Fan /O-ring	1/1	
3	Magneto rotor	1	
4	Bind	1	
5	Couplers (magneto leads)	2	
6	Stator coil	1	
7	Woodruff key	1	
8	Gasket (Magneto cover)	1	
			Reverse the removal procedure for installation.





C.D.I. MAGNETO REMOVAL

1. Remove :
   - Nut ① (rotor)
   - Plain washer

NOTE:

Hold the rotor to loosen the nut by the flywheel holding tool ②.

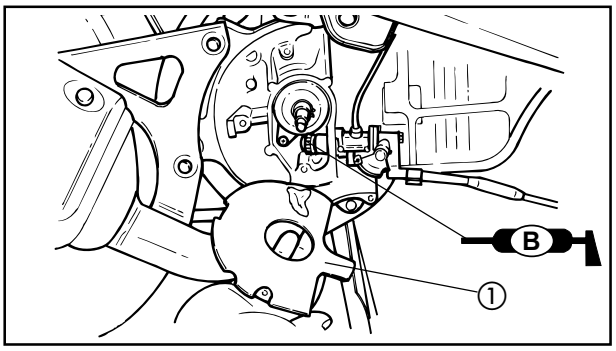
Flywheel holding tool :
90890-01235

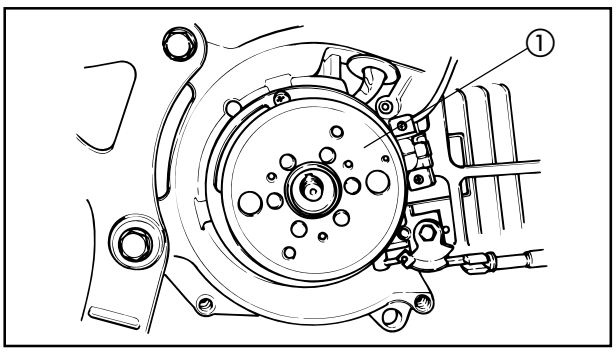
2. Remove :
   - Rotor ①
   - Woodruff key

Use the flywheel magneto puller ②.

Flywheel magneto puller :
90890-01189

   - Stator assembly
   - Gasket



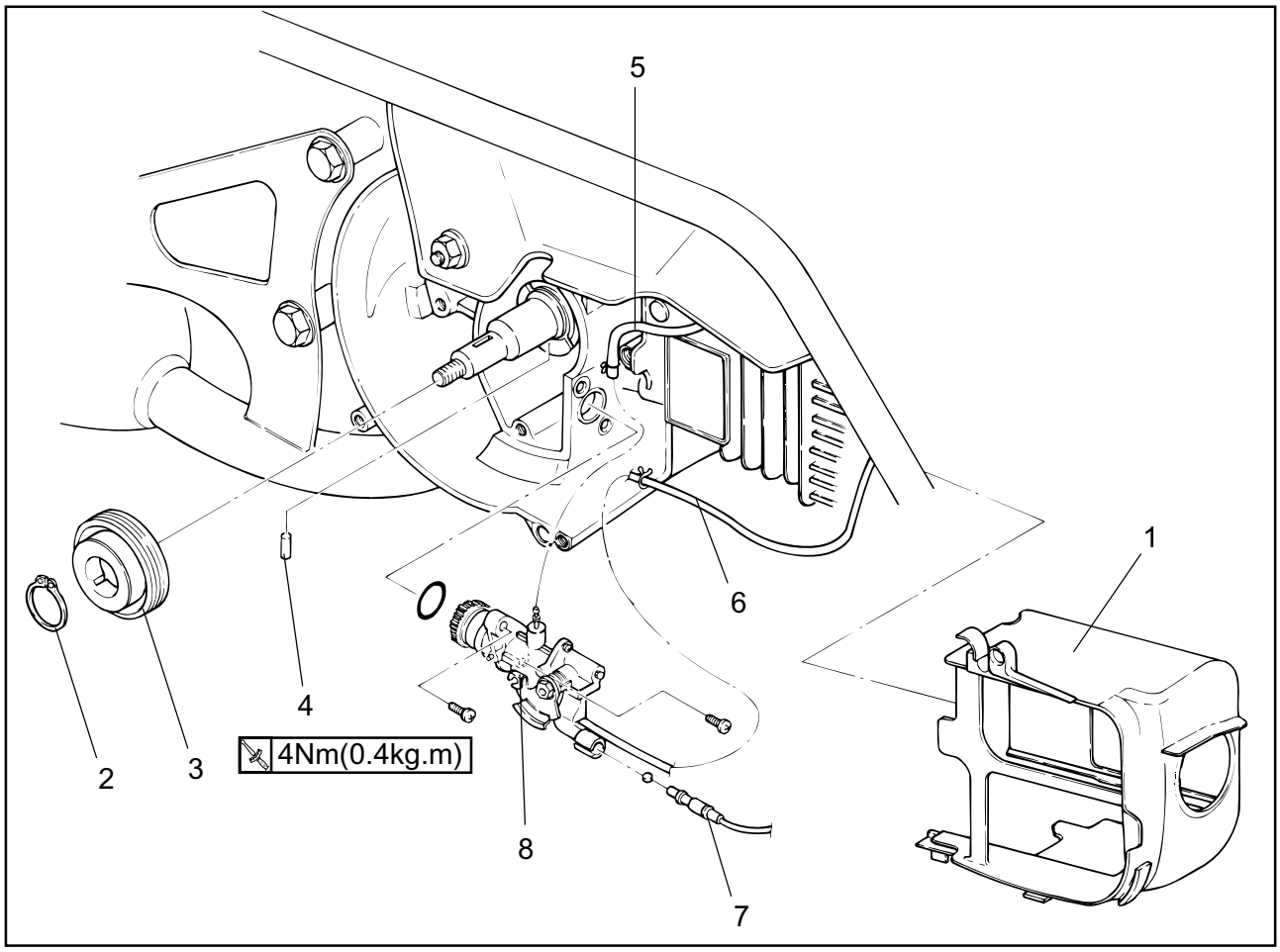


C.D.I. MAGNETO INSTALLATION

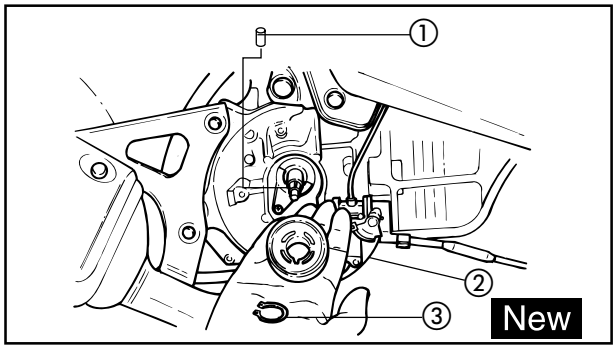
1. Install :
   - Gasket ①
2. Apply :
   - Lithium soap base grease (to oil seal)
3. Pass the C.D.I. magneto lead through the crankcase hole.
4. Install :
   - Stator assembly 8 Nm(0.8 kg.m)
5. Install :
   - Woodruff key
   - C.D.I. magneto Rotor ①
   - Plain washer
   - Nut 43Nm(4.3 kg.m)

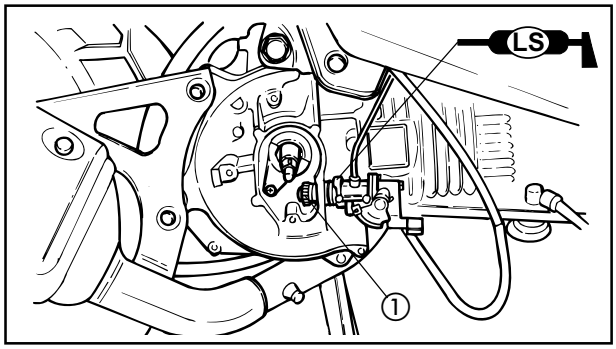
AUTOLUBE PUMP

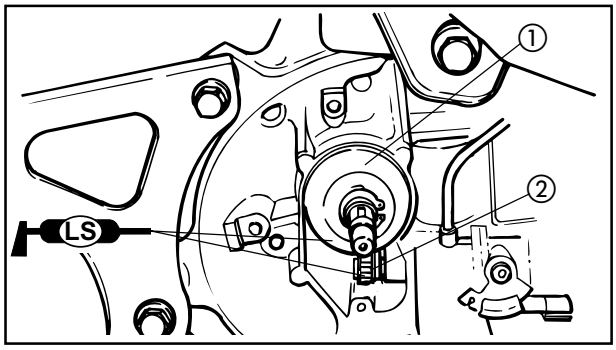
AUTOLUBE PUMP



Order	Job name/Part name	Q'ty	Remarks
	Autolube pump removal		Remove the parts in order.
	C.D.I. magneto		Refer to "C.D.I. MAGNETO" section.
1	Air shroud 2.	1	
2	Circlip	1	
3	Pump drive gear	1	
4	Pin	1	
5	Oil hose	1	
6	Oil delivery hose	1	
7	Autolube pump cable	1	
8	Autolube pump ass'y	1	Refer to "AUTOLUBE PUMP INSTALLATION" section
			Reverse the removal procedure for installation.







AUTOLUBE PUMP INSTALLATION

CAUTION:

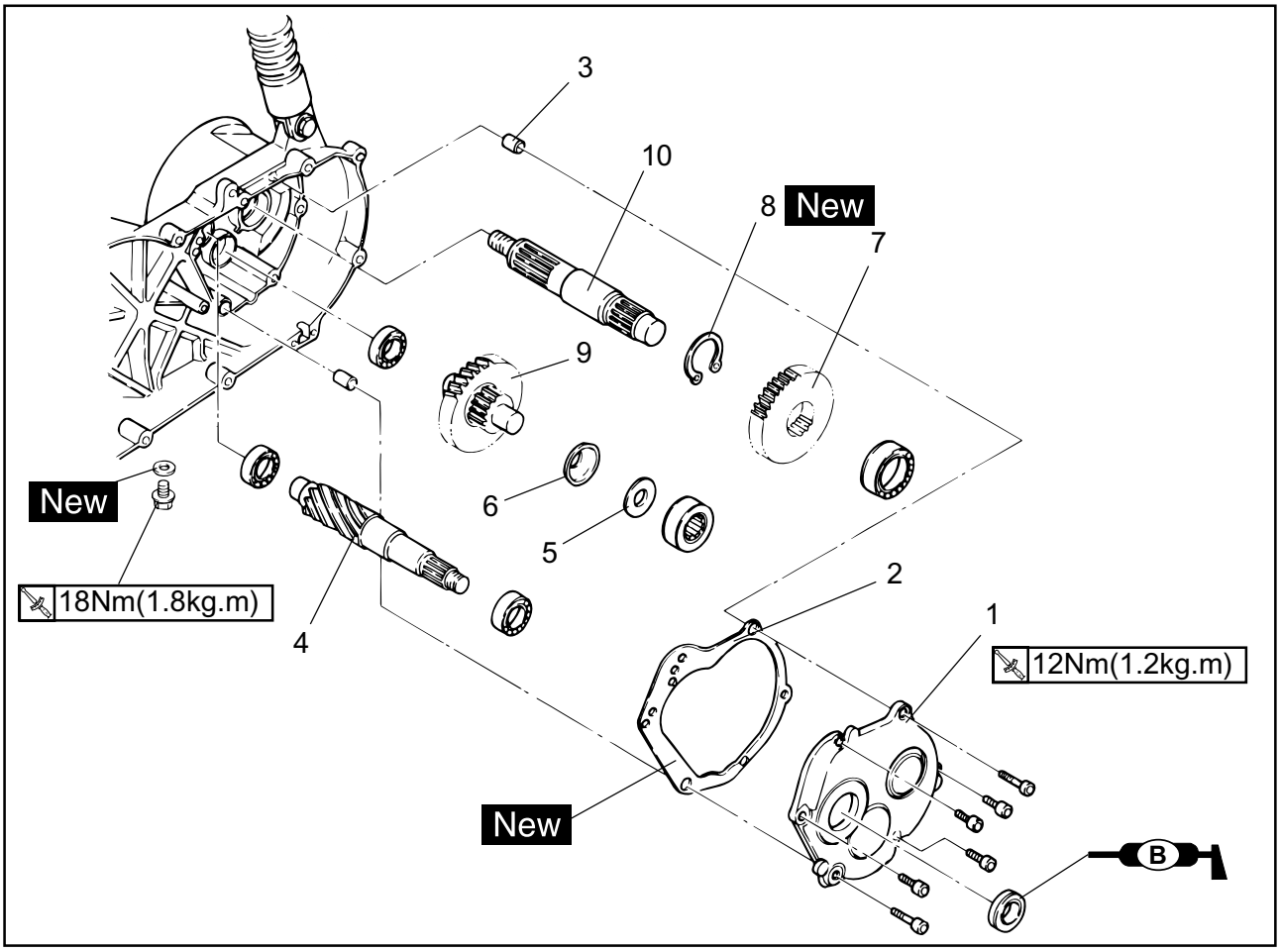
After installing autolube pump, it must be bleeded.

1. Install :
   - Pin ①
   - Pump drive gear ②
   - Circlip ③ New
2. Apply :
   - Lithium soap base grease (to O-ring)
3. Install :
   - Autolube pump ① 4 Nm(0.4m.kg)

4. Apply:
   - Lithium soap base grease (to autolube pump gear ①,②)

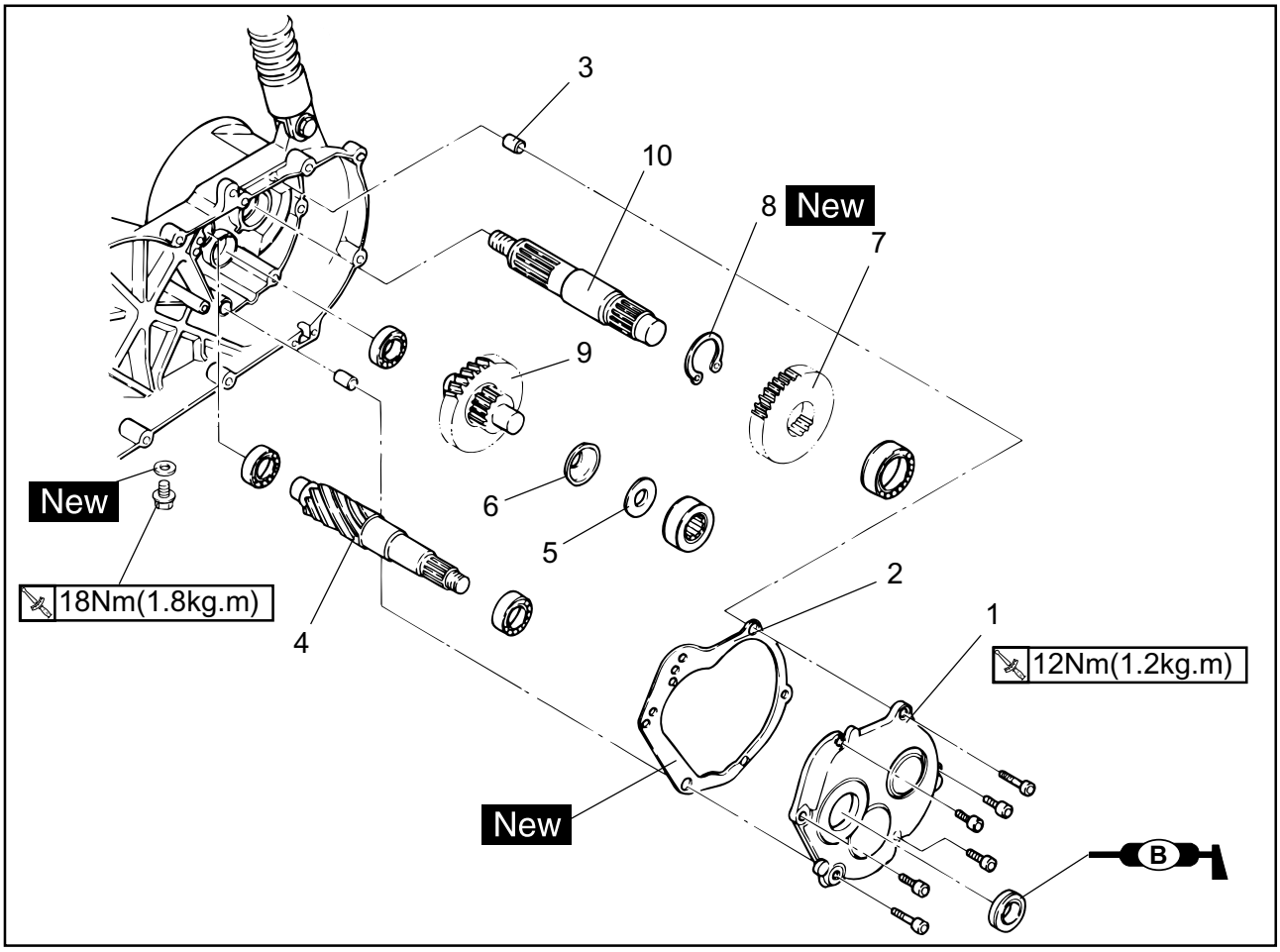
	15 cc (0.92 cu • in)

TRANSMISSION
TRANSMISSION

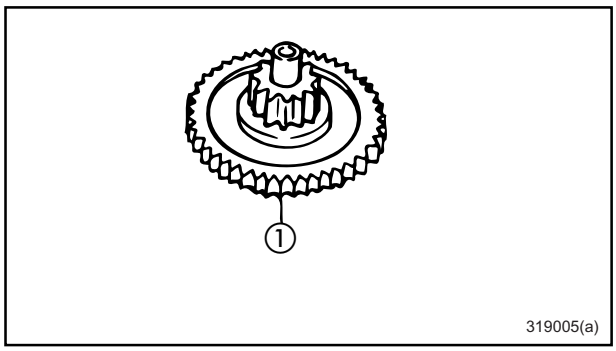


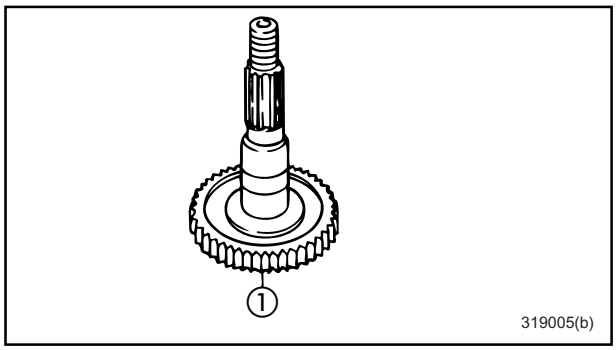
Order	Job name/Part name	Q'ty	Remarks
	Transmission removal		Remove the parts in order.
	Rear wheel		Refer to "REAR WHEEL AND REAR BRAKE " section in chapter 6.
	Secondary sheave		Refer to "V-BELT, CLUTCH, SECONDARY/ PRIMARY SHEAVE" section
	Drain the transmission oil.		Refer to "CHANGING THE TRANSMISSION OIL " section in chapter 3.
1	Transmission case cover	1	
2	Gasket (transmission case cover)	1	
3	Dowel pin	2	
4	Secondary sheave axle	1	
5	Plain washer	1	
6	Conical spring washer	1	
7	Drive gear	1	

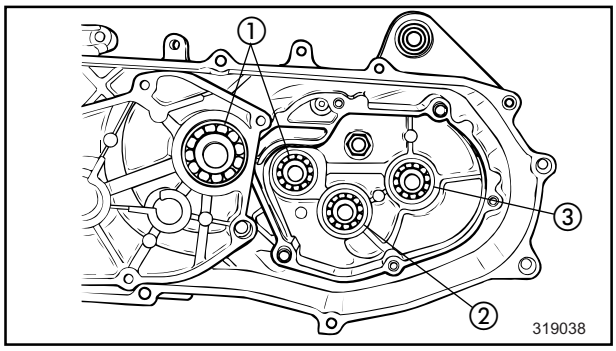
TRANSMISSION
TRANSMISSION



Order	Job name/Part name	Q'ty	Remarks
8	Circlip	1	
9	Main axle	1	
10	Drive axle	1	
			Reverse the removal procedure for installation.







EAS00423
CHECKING THE TRANSMISSION

1. Measure:
   • main axle runout ①
   (with a centering device and dial gauge)
   Out of specification → Replace the main axle.

	Main axle deflection limit **0.08 mm**

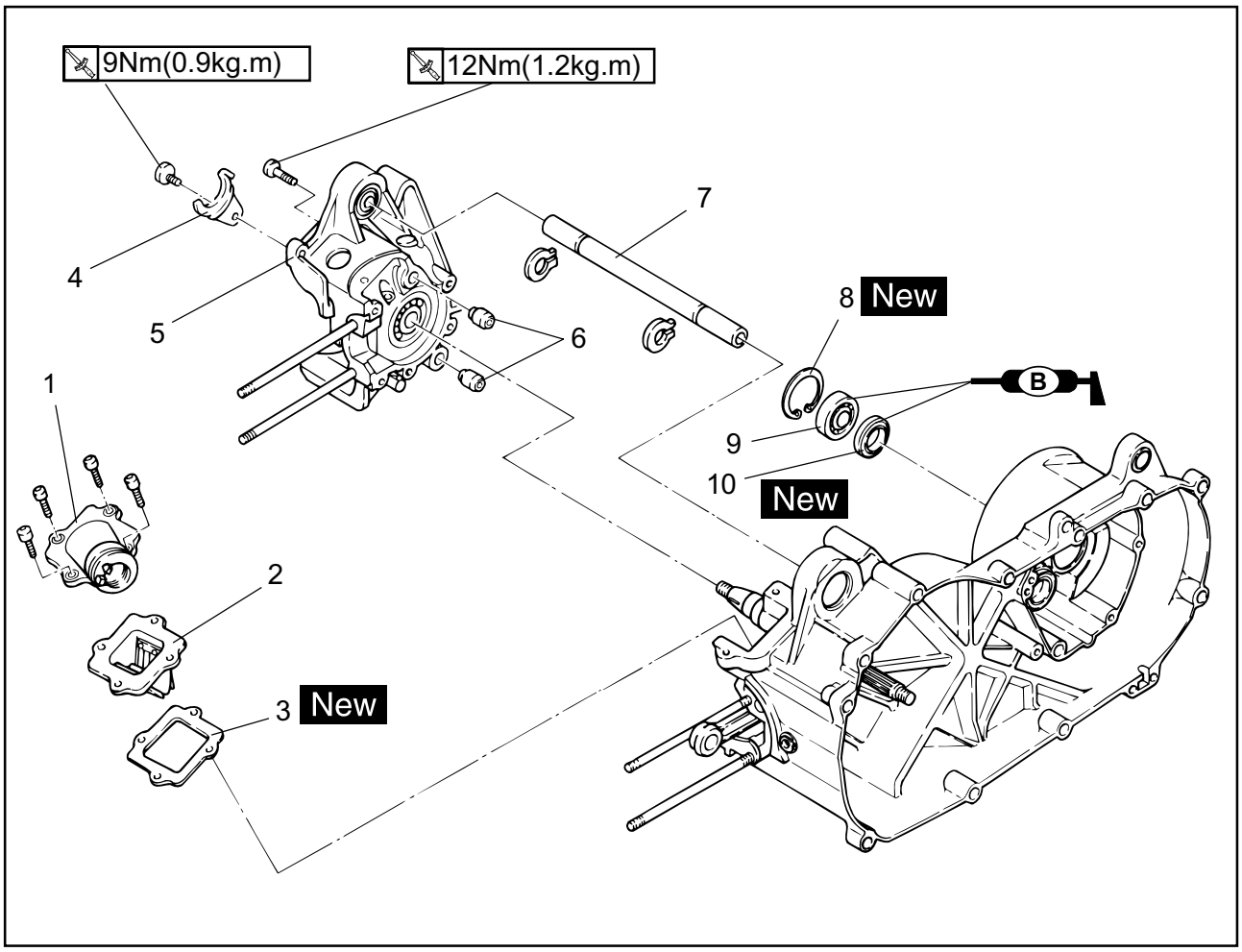
2. Measure:
   • drive axle runout ①
   (with a centering device and dial gauge)
   Out of specification → Replace the drive axle.

	Drive axle deflection limit **0.08 mm**

3. Check:
   • secondary sheaveaxle bearing ①
   • main axle bearing ②
   • drive axle bearing ③
   Spin the bearing inner race.
   Excessive play/Roughness → Replace.
   Pitting/Damage → Replace.

CRANKCASE AND REED VALVE

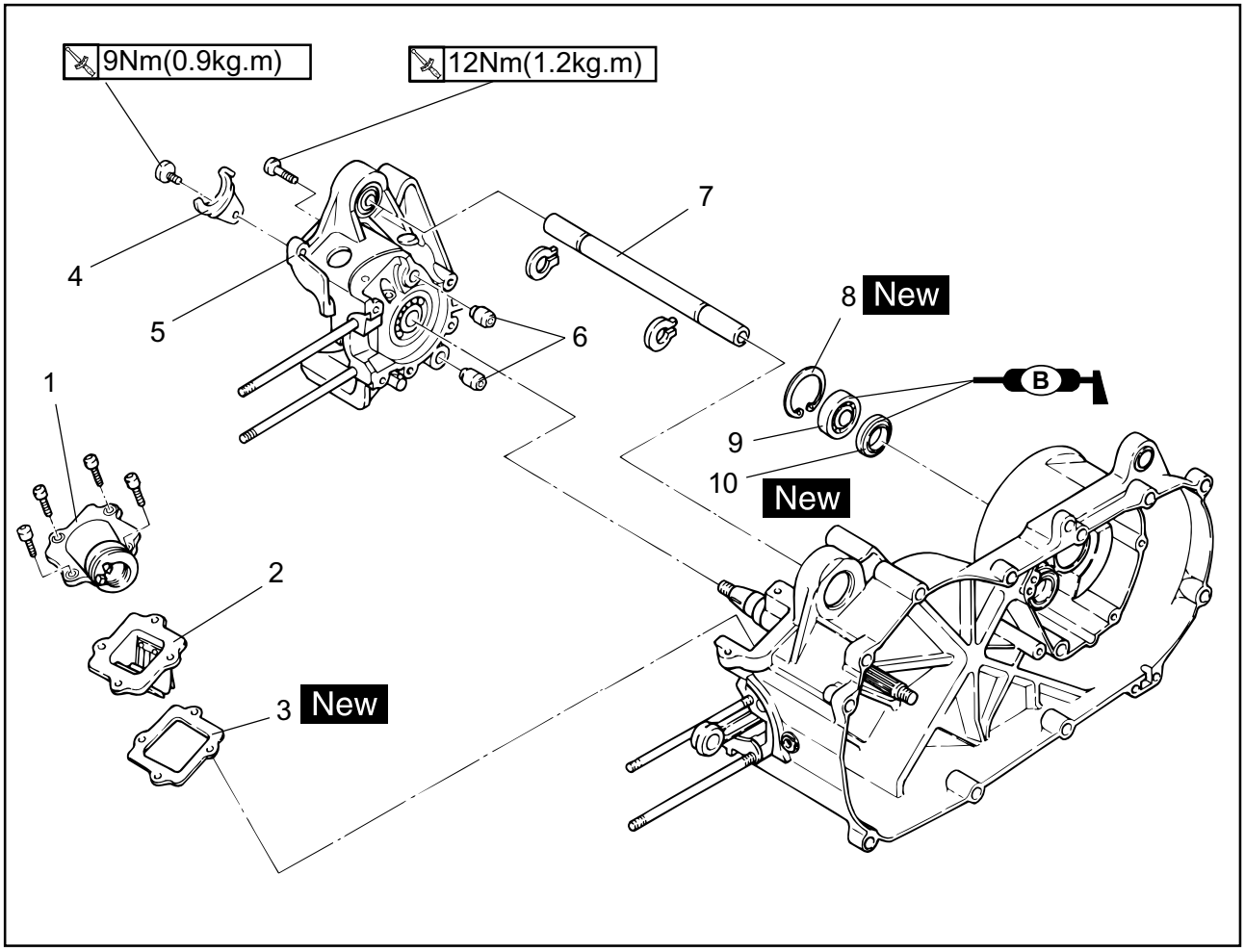
CRANKCASE AND REED VALVE



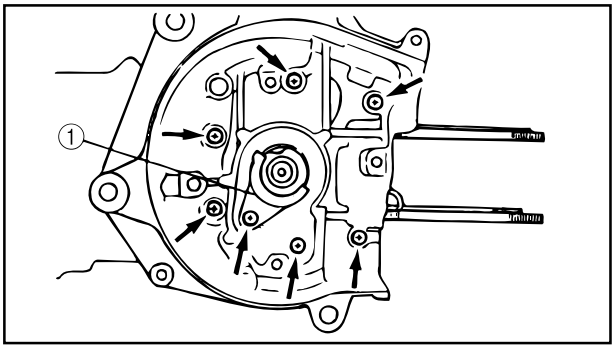
Order	Job name/Part name	Q'ty	Remarks
	Crankcase and Reed valve removal		Remove the parts in order.
	Engine removal		Refer to "ENGINE REMOVAL" section.
	Cylinder head, cylinder, piston		Refer to "CYLINDER HEAD CYLINDER AND PISTON" section.
	Crankcase cover (left)		Refer to "CRANKCASE COVER (LEFT) " section.
	V-belt, clutch, secondary/primary sheave		Refer to "V-BELT, CLUTCH AND SECONDARY/PRIMARY SHEAVE " section.
	C.D.I . magneto		Refer to "C.D.I. MAGNETO" section.
	Starter clutch, starter motor		Refer to "STARTER CLUTCH AND STARTER MOTOR" section.
	Autolube pump		Refer to "AUTOLUBE PUMP" section.
	Rear wheel		Refer to "REAR WHEEL AND BRAKE" section in chapter 6.
	Transmission		Refer to "TRANSMISSION" section.

CRANKCASE AND REED VALVE

CRANKCASE AND REED VALVE



Order	Job name/Part name	Q'ty	Remarks
1	Intake manifold	1	
2	Reed valve	1	
3	Valve seat gasket	1	
4	Stopper	1	
5	Crankcase 2	1	Refer to "CRANCKCASE REMOVEL" and "CRANCKCASE INSTALLATION"
6	Dowel pin	2	
7	Engine mount spacer	1	
8	Circlip	1	
9	Bearing	1	
10	Oil seal	1	
			Reverse the removal procedure for installation.

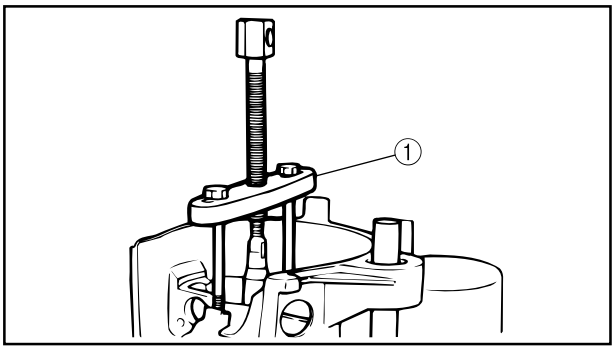


CRANKCASE (RIGHT) REMOVAL

1. Remove :
   - Oil seal stopper ①
   - Screws (crankcase) 9Nm(0.9 kg.m)

NOTE:

Loosen each screw 1/4 turn, and remove them after all are loosened.



2. Attach :
   - Crankcase separating tool ①

Crankcase separating tool :
90890-01135

NOTE:

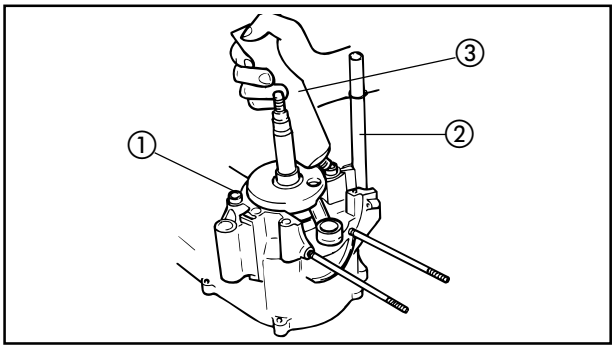
Fully tighten the tool holding bolts, but make sure the tool body is parallel with the case. If necessary, one screw may be backed out slightly to level tool body.

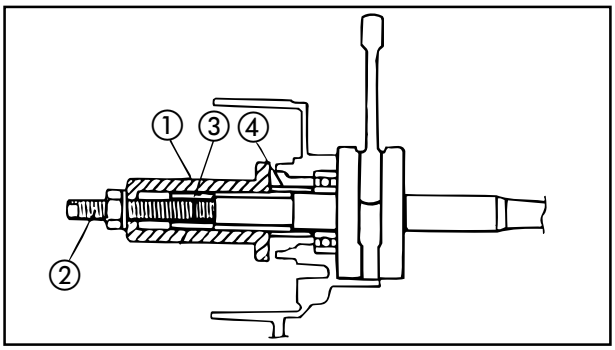
3. Remove :
   - Crankcase (right)

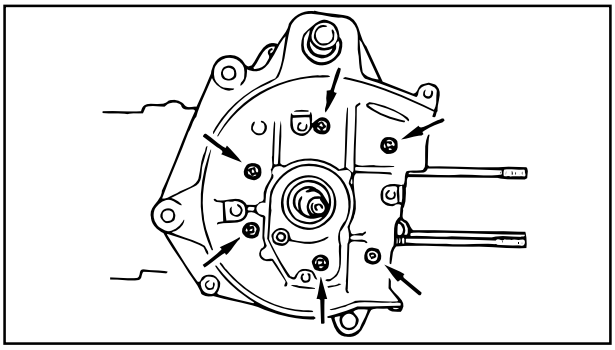
As pressure is applied, alternately tap on the engine mounting bosses.

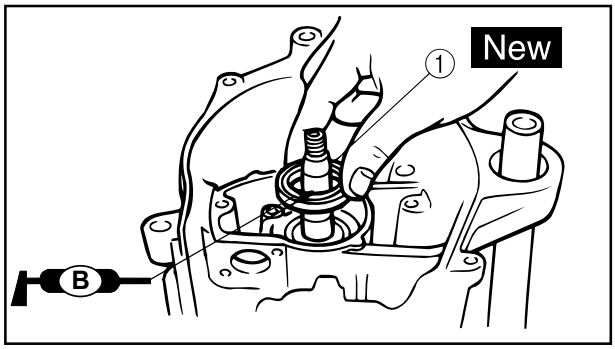
CAUTION:

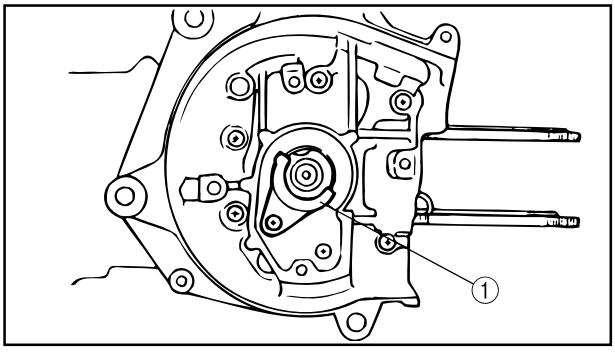
Use a soft hammer to tap on the case. Tap only on reinforced spots of the case. Never tap on the gasket mating surfaces. Work slowly and carefully. Make sure the cases separate evently. If one end "hand up" take the pressure off the push screw, realign the cases and the tool and start again. If the cases do not separate at all, check for remaining case screw or fitting. Do not force.











CRANKCASE (RIGHT) INSTALLATION

1. Install :
   - Dowel pins ①
   - Engine mount spacer ②
2. Apply :
   - Yamaha Bond No.1215 ③

To the mating surfaces of both case helves.

Yamaha bond No.1215:
90890-85505

3. Attach :
   - Crankshaft installing tools

Crankshaft installing tool:
90890-01274①
90890-01275②
90890-01277 ③
90890-01288 ④

4. Tighten :
   - Crankcase holding screws

12 Nm(1.2 kg.m)

NOTE:
Tighten the crankcase holding screws in stage, using a crisscross pattern.

5. Check :
   - Crankshaft operation

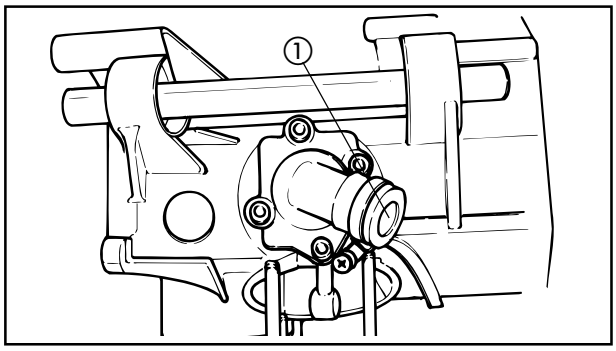
Unsmnoth operation → Repair.

6. Install :
   - Oil seal (right crank case) ① New

Apply grease onto oil seal lip.

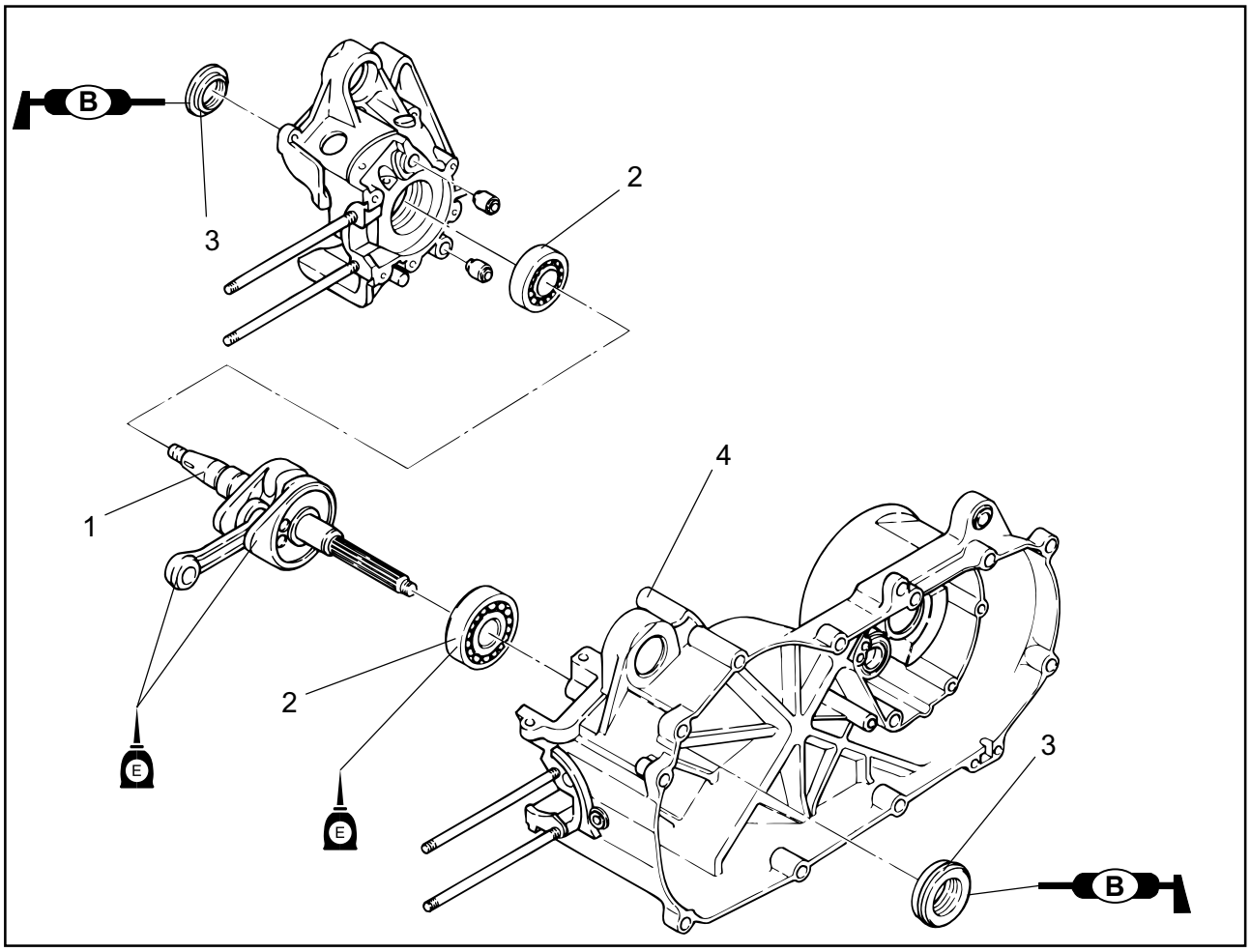
7. Install:
   - Oil seal stopper plate ①

9 Nm (0.9 kg.m)

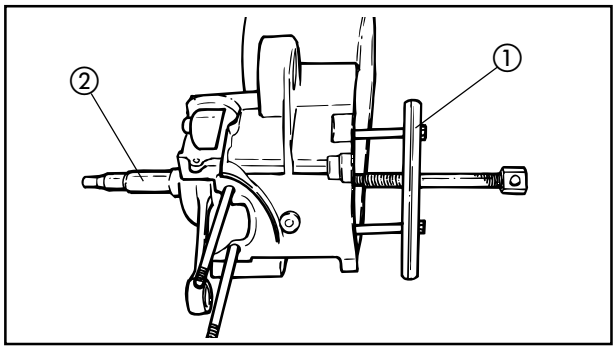


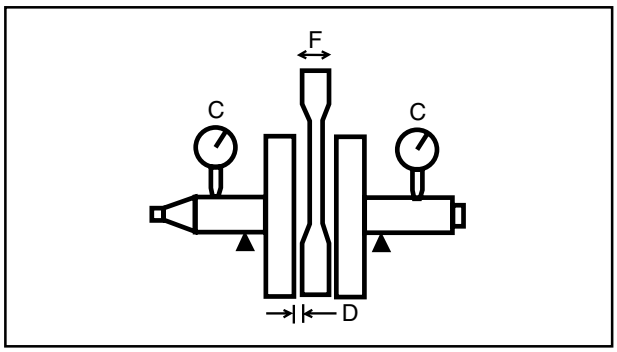
8. Install :
   • Gasket
   • Reed valve ① 11 Nm(1.1 kg.m)

CRANKSHAFT
CRANKSHAFT



Order	Job name/Part name	Q'ty	Remarks
	Crankshaft removal Right crankcase removal		Remove the parts in order. Refer to "CRANKCASE AND REED VALVE" section.
1	Crankshaft	1	
2	Bearing	2	
3	Oil seal	2	
4	Crankcase cover (left)	1	
			Reverse the removal procedure for installation.





CRANKSHAFT REMOVAL

1. Attach :
   • Crankcase separating tool ①

	Crankcase separating tool : 90890-01135

2. Remove :
   • Crankshaft ②

CRANKSHAFT INSPECTION

1. Measure :
   • Runout limit " C"
   • Connecting rod big end side clearance "D"
   • Small end free play limit "F"

Out of specification→Replace.

Use V-blocks, dial gauge and thickness gauge.

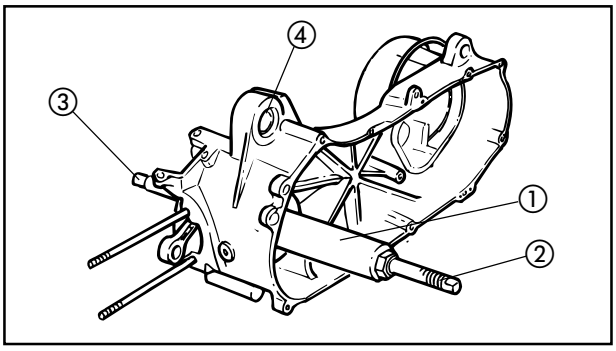
	Runout limit "C" : 0.03 mm **Connecting rod big end side clearance "D": 0.2 ~ 0.5 mm** **Small end free play " F" : 0.4 ~ 0.8 mm**

2. Inspect:
   • Bearings (crankshaft)

Spin the bearing inner race.

Excessive play/Roughness→Replace.

Pitting/Damage→Replace.

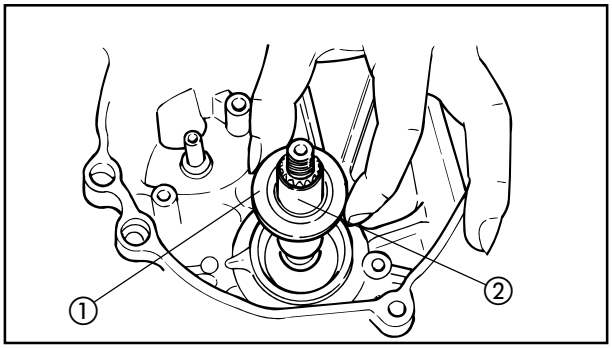


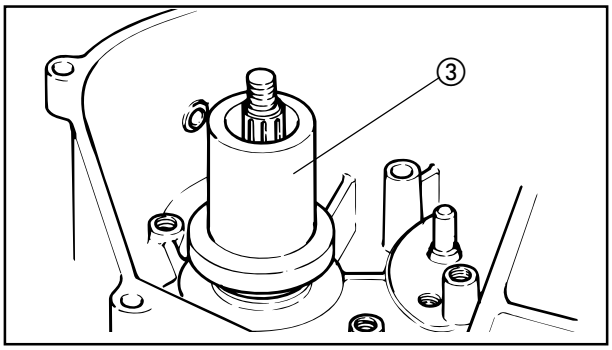
CRANKSHAFT INSTALLATION

1. Attach :
   • Crankshaft Installing Tool

Crankshaft installing tool:
90890-01274
90890-01275
90890-01277①
90890-01288②

2. Install :
   • Crankshaft ③
   (to the crankcase ④)

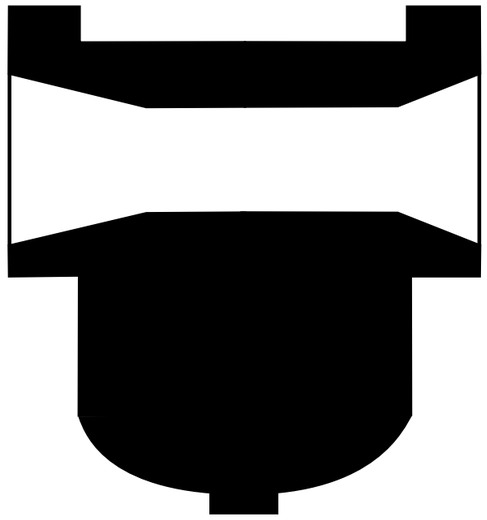




3. Install :
   • Oil seal ① New
   • Apply lithium soap base grease onto the oil seal lip.

Use the guide ② and seal driver ③ to install the oil seal

Oil seal installer
90890-01410
Oil seal guide
90890-01409



CARB 5

CHAPTER 5.
CARBURETOR

CARBURETOR 5-1
CARBURETOR 5-1
TEIKEI CARBURETOR DISASSEMBLY 5-2
CHECKING THE CARBURETOR 5-4
ASSEMBLING THE CARBURETOR 5-5
INSTALLING THE CARBURETOR 5-6

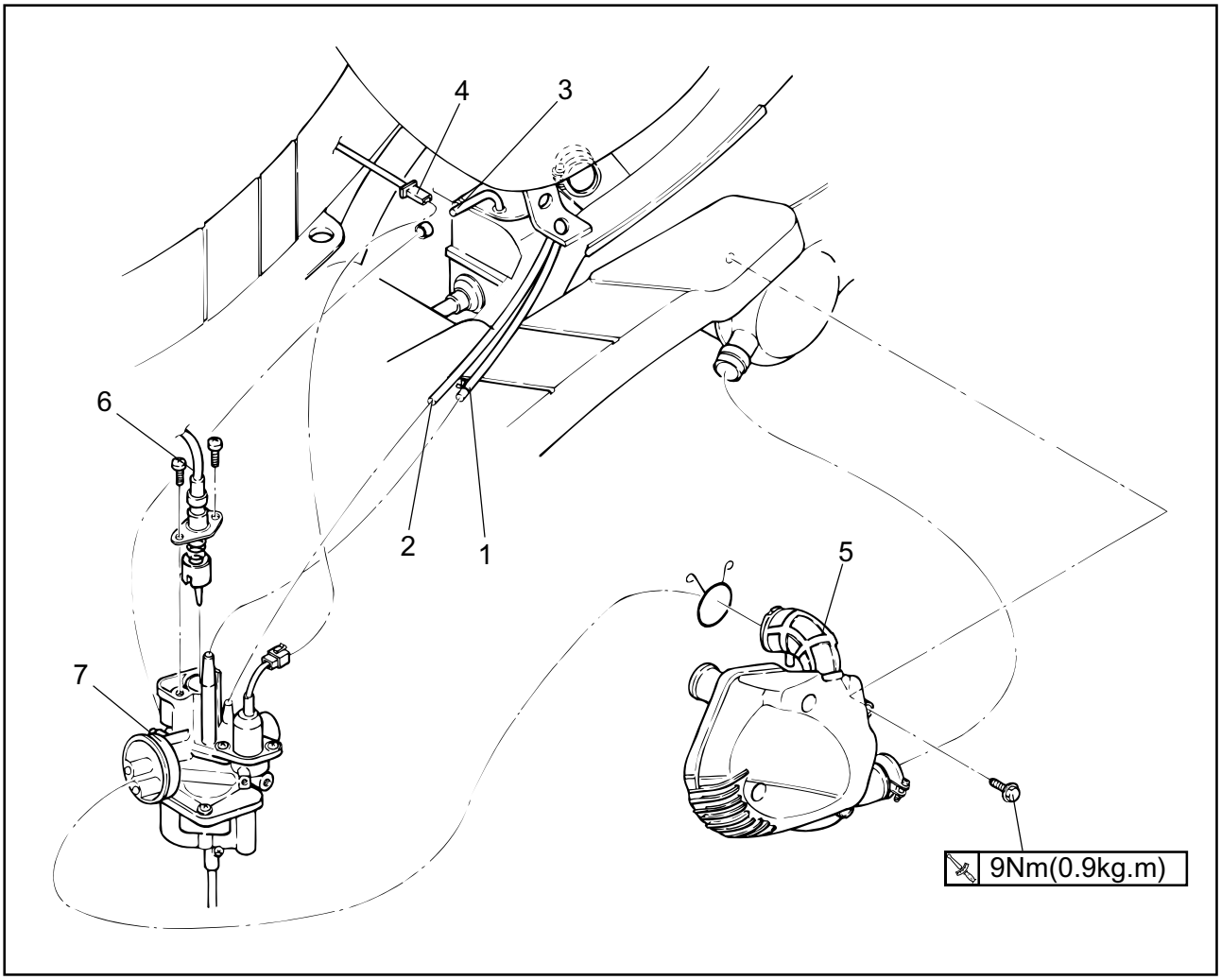
FUEL COCK 5-7
INSPECTING THE FUEL COCK 5-7
CLEANING THE FUEL FILTER 5-7

REED VALVE 5-8
CHECKING THE REED VALVE 5-9
INSTALLING THE REED VALVE 5-9

EAS00480

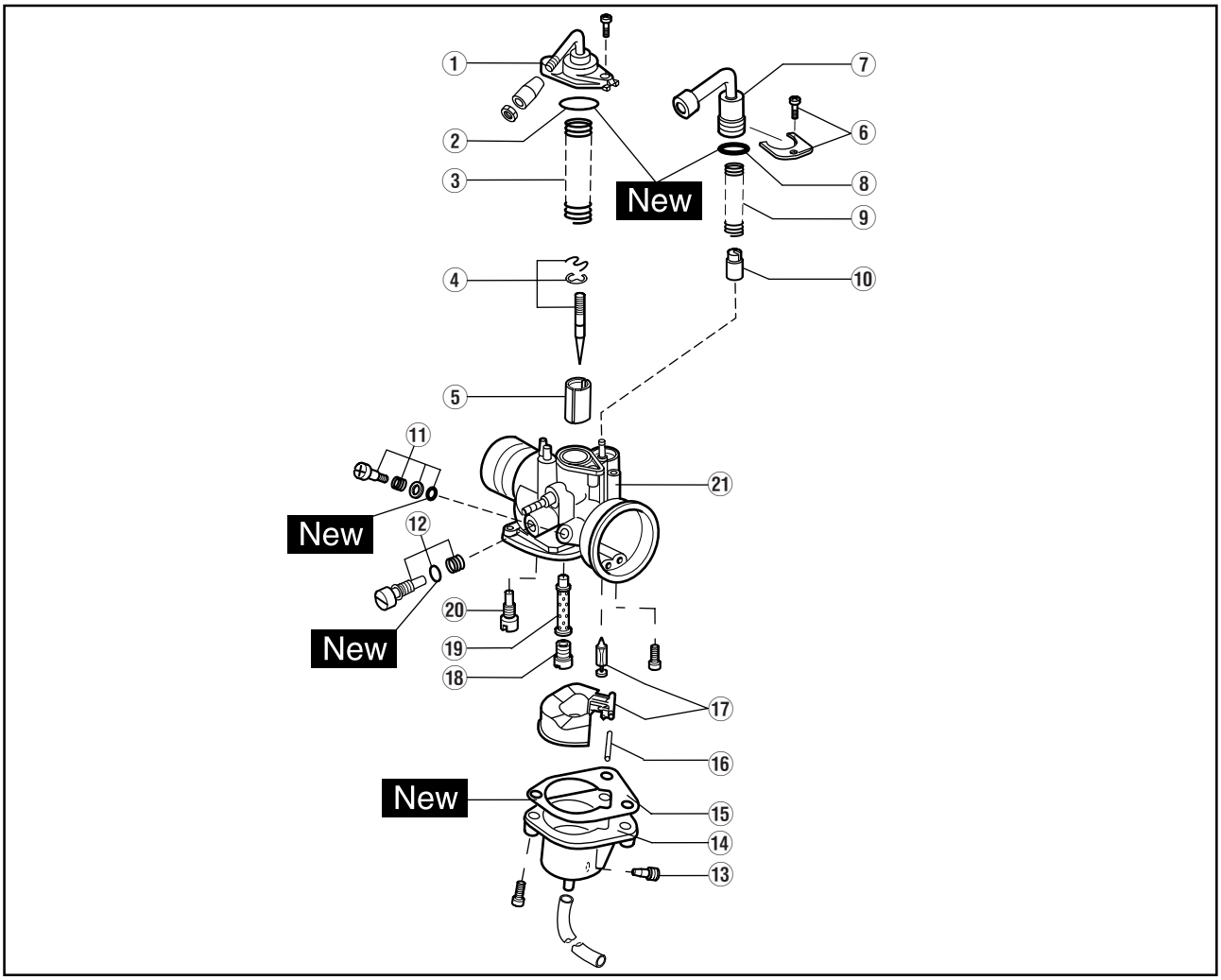
CARBURETOR

CARBURETOR



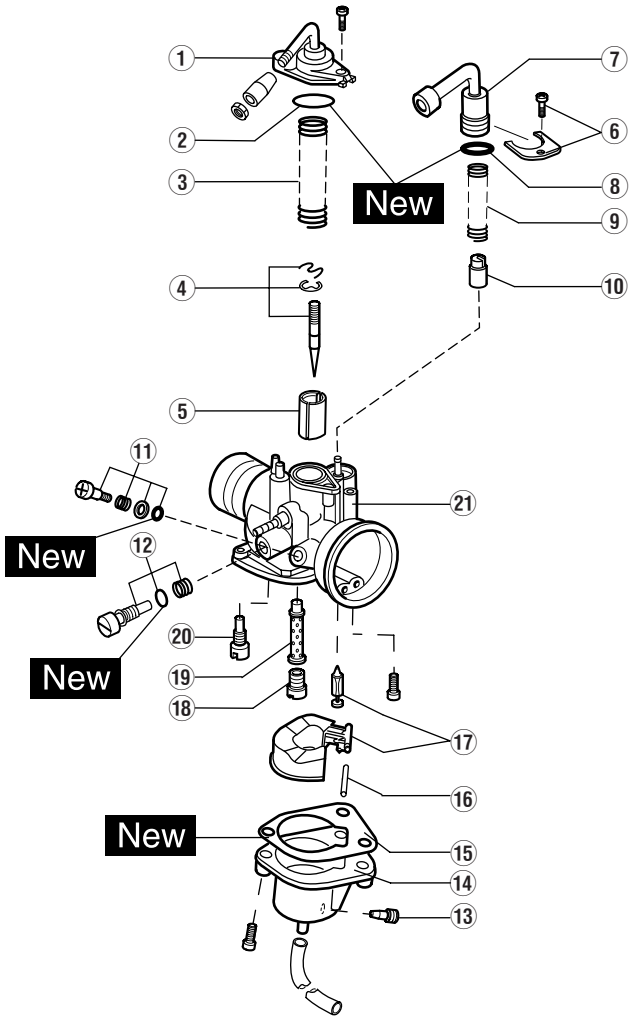
Order	Job/Part	Q'ty	Remarks
	Removing the carburetor Air filter box		Remove the parts in the order listed.
1	Fuel hose	1	
2	Vacuum hose	1	
3	Oil delivery hose	1	
4	Choke cable	1	
5	Air filter joint	1	Unhook
6	Throttle cable	1	
7	Carburetor	1	
			For installation, reverse the removal procedure.

EAS000483
TEIKEI CARBURETOR DISASSEMBLY

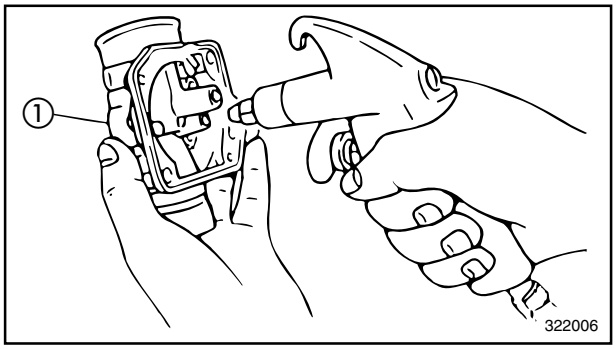


Order	Job/Part	Q'ty	Remarks
	Carburetor disassembly		Remove the parts in the order listed.
①	Carburetor top	1	
②	Gasket	1	
③	Throttle valve spring	1	
④	Needle set	1	
⑤	Throttle valve	1	
⑥	Starter retaining plate	1	
⑦	Starter top cover	1	
⑧	Starter plunger O'ring	1	
⑨	Starter plunger spring	1	
⑩	Starter plunger	1	
⑪	Air screw set	1	
⑫	Throttle stop screw	1	
⑬	Drain screw	1	

EAS000483
TEIKEI CARBURETOR DISASSEMBLY



Order	Job name/Part name	Q'ty	Remarks
⑭	Float chamber	1	
⑮	Float chamber gasket	1	
⑯	Float pin	1	
⑰	Float / Needle valve	1/1	
⑱	Main jet	1	
⑲	Main nozzle	1	
⑳	Pilot jet	1	
㉑	Carburetor body	1	
			For installation, reverse the removal procedure.



EAS00485
CHECKING THE CARBURETOR

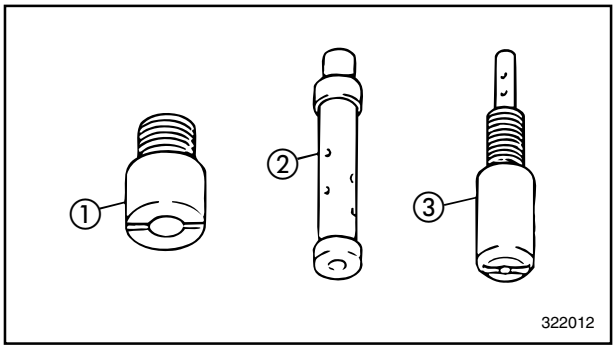
1. Check :
   - carburetor body ①
   - float chamber
   - jet housing
   - fuel passages

   Durt/Obstruction → Clean
   Cracks/damage → Replace.

a. Wash the carburetor in a petroleum-based solvent. Do not use any caustic carburetor cleaning solution.
b. Blow out all of the passages and jets with compressed air.

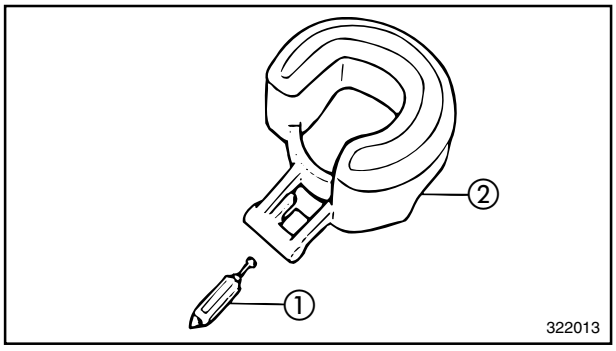
2. Check :
   - float chamber rubber gasket

   Cracks/damage/wear → Replace.



3. Check :
   - main jet ①
   - needle jet ②
   - pilot jet ③

   Contamination → Clean.

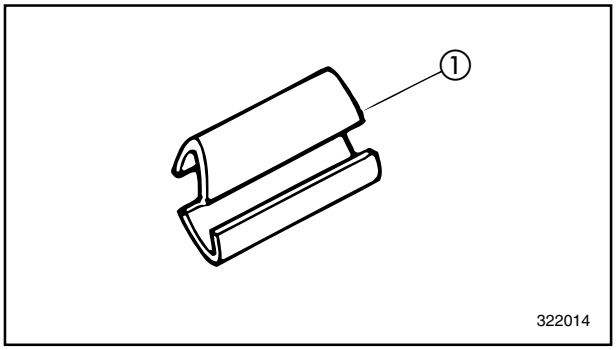


4. Check :
   - float ②

   Damage → Replace.
   - needle valve ①

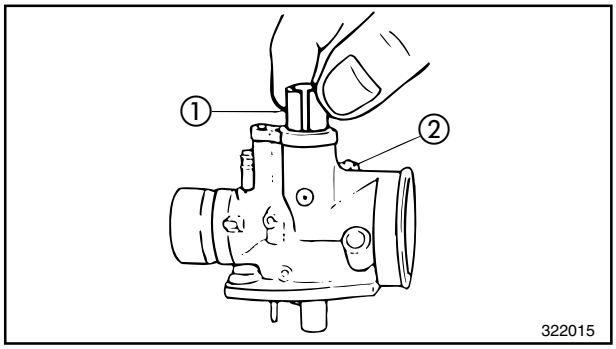
   Wear/Contamination → Replace
   - gasket

   Damage → Replace.



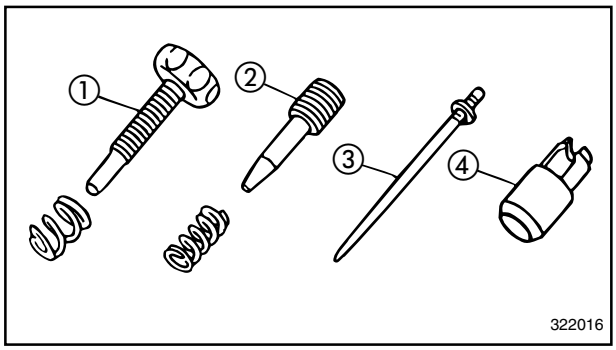
5. Check :
   - Throttle valve ①

   Damage/Wear → Replace.



6. Check :
   • Throttle valve free movement
   Unsmooth/Stickiness → Replace.

Insert the throttle valve ① into the carburetor body ② and check for smooth movement.



7. Check :
   • throttle stop screw ①
   • air screw ②
   • needle ③
   • starter plunger ④
   Damage/Wear → Replace.

NOTE:

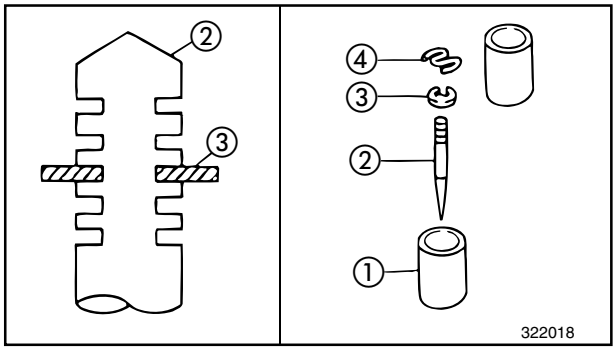
The float height is factory-adjusted. Never try to adjust it yourself.

EAS00487

ASSEMBLING THE CARBURETOR

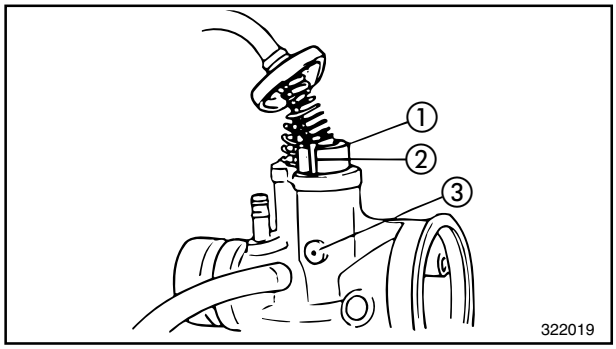
CAUTION:

Before assembling the carburetor, wash all of the parts in a petroleum-based solvent. Always use a new gasket.



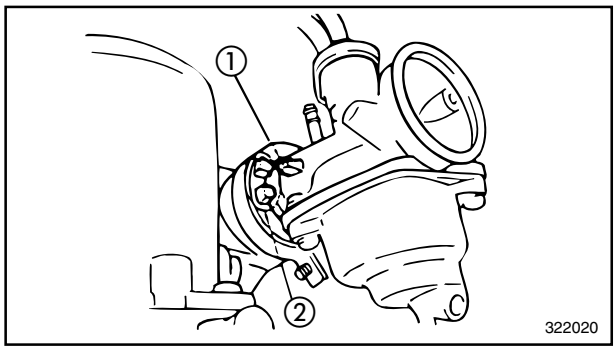
1. Install :
   • needle ②
   • clip ③
   • throttle valve ①
   • spring seat ④
   • spring

Jet needle clip position :
3/5



2. Install :
   • throttle valve ①
   • starter plunger

NOTE:
Align the groove ② of the throttle valve with the projection ③ of the carburetor.



3. Install :
   • Carburetor

NOTE:
Align projection ① with projection ②.

EAS00492
INSTALLING THE CARBURETOR

1. Adjust:
   • engine idling speed

Engine idling speed
1800 ~ 2200 r/min

Refer to "ADJUSTING THE ENGINE IDLING SPEED" in chapter 3.

2. Adjust:
   • throttle cable free play

Throttle cable free play (at the flange of the throttle grip)
1.5 ~ 3.0 mm

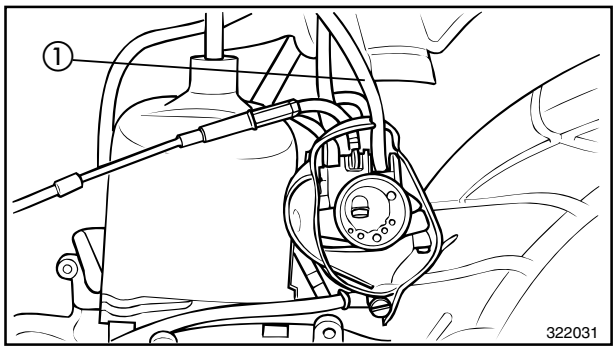
Refer to "ADJUSTING THE THROTTLE CABLE FREE PLAY" in chapter 3.

FUEL COCK

INSPECTING THE FUEL COCK

1. Stop the engine.

2. Remove:
   • Side covers
   Refer to "COVERS" in Chapter 3.



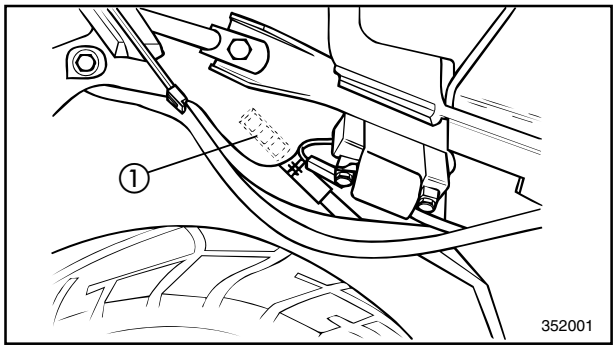
3. Inspect:
   • Fuel cock

****

Fuel cock inspection steps:

- Disconnect the fuel hose ①.
- Place the receptacle under the fuel hose end.
- If fuel stops flowing out in a few seconds, the fuel cock is in good condition.
  If not, clean or replace the fuel cock.
- Disconnect the vaccum hose and breathe in through the vaccum hose, for vaccum.
- If fuel flows out of the fuel hose under vaccum and stops under non-vaccum, the fuel cock is in good condition.
  If not, clean or replace the vaccum hose, fuel hose and fuel cock.

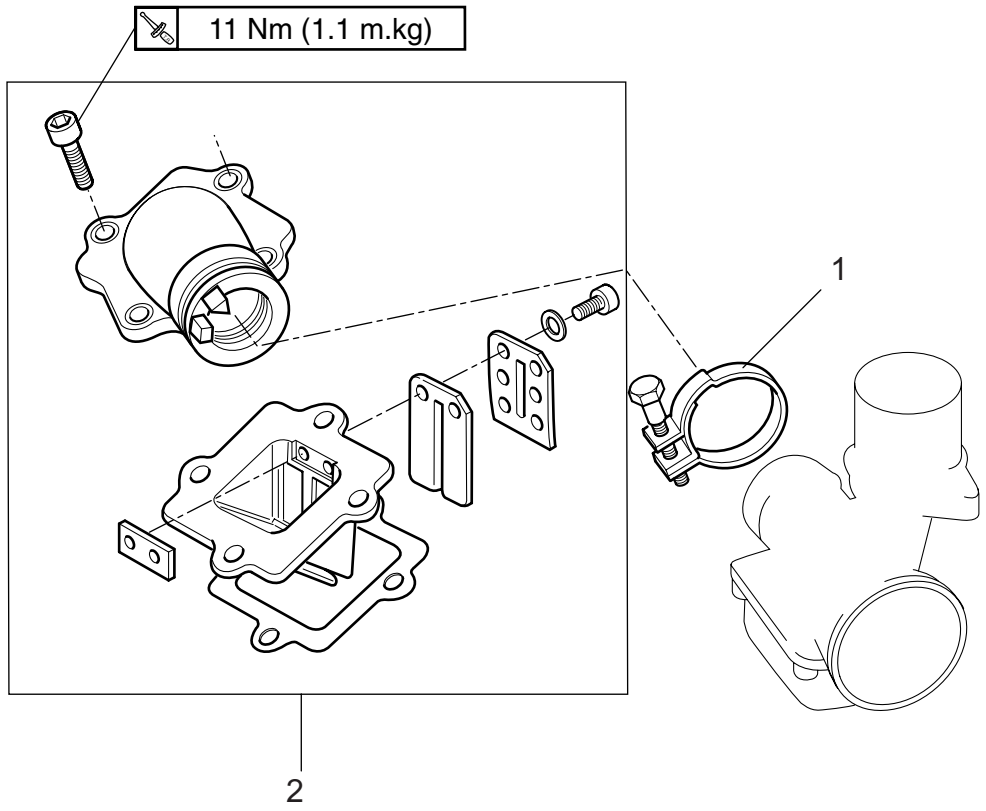
****



CLEANING THE FUEL FILTER

The fuel filter ① is fitted inside the fuel tank. It is accessible when the fuel hose (between the fuel tank and the fuel cock) is disconnected.

REED VALVE



Order	Job/Part	Q'ty	Remarks
	Removing the reed valve Carburetor		Remove the parts in the order listed. Refer to "CARBURETOR" section.
1	Carburetor joint	1	
2	Reed valve assembly	1	
			For installation, reverse the removal procedure.

YP600051

CHECKING THE REED VALVE

1. Inspect :
   • Caburetor joint
   Damage/Cracks → Replace.
   • Reed valve
   Fatigue/Cracks → Replace.

****

Inspection steps :

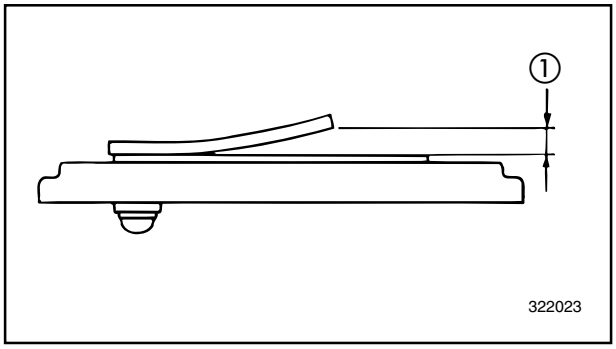
• Visually inspect the reed valve.

NOTE:

Correct reed valve should fit flush or nearly flush against valve seat.

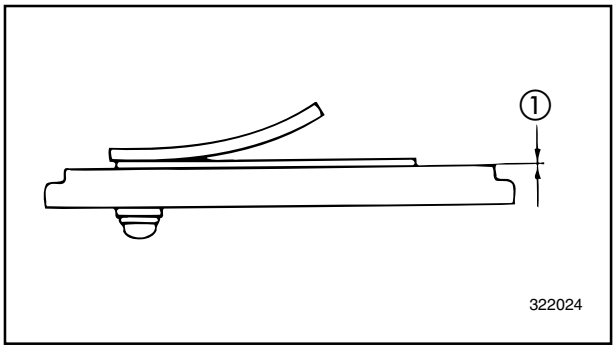
• If in doubt as to sealing ability, apply suction to carburetor side of assembly.
• Leakage should be slight to moderate.

****



2. Measure :
   • Valve stopper height ①
   Out of specification → Replace valve stopper.

Valve stopper height ①:
6.0 ~ 6.4 mm



3. Measure :
   • Reed valve clearance ①
   Out of specification → Replace reed valve.

Reed valve clearance ①:
Less than 0.2 mm

INSTALLING THE REED VALVE

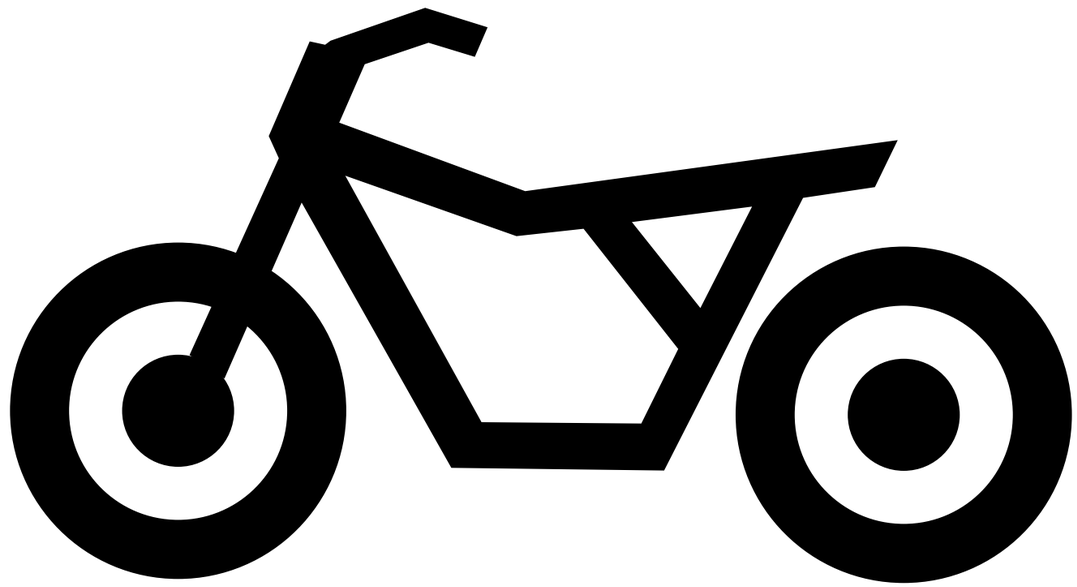
Reserve the removal procedure.
Note the following points.

1. Install :
   • Gasket New
2. Tighten :
• Reed valve securing bolts

11Nm (1.1 m•kg)

NOTE:

Tighten the bolts gradually to avoid warping.



CHAS 6

CHAPTER 6.
CHASSIS

FRONT WHEEL AND BRAKE DISC 6-1
FRONT WHEEL AND BARKE DISC 6-1
FRONT WHEEL 6-2
REMOVING THE FRONT WHEEL 6-3
DISASSEMBLING THE FRONT WHEEL 6-3
CHECKING THE FRONT WHEEL 6-4
CHECKING THE BRAKE DISC 6-6
CHECKING THE SPEEDOMETER GEAR UNIT 6-7
ASSEMBLING THE FRONT WHEEL 6-7
INSTALLING THE FRONT WHEEL 6-8
ADJUSTING THE FRONT WHEEL STATIC BALANCE 6-9

REAR WHEEL AND BRAKE 6-11
CHECKING THE REAR WHEEL 6-13
CHECKING THE BRAKE 6-13
INSTALLING THE REAR BRAKE 6-14
INSTALLING THE REAR WHEEL 6-15

FRONT BRAKE 6-16
FRONT BRAKE PADS 6-16
BRAKE PADS REPLACEMENT 6-18
FRONT BRAKE MASTER CYLINDER 6-19
DISASSEMBLING THE FRONT BRAKE MASTER CYLINDER 6-21
CHECKING THE FRONT BRAKE MASTER CYLINDER 6-21
ASSEMBLING AND INSTALLING THE FRONT BRAKE MASTER CYLINDER 6-22
FRONT BRAKE CALIPER 6-24
DISASSEMBLING THE FRONT BRAKE CALIPER 6-26
CHECKING THE FRONT BRAKE CALIPER 6-27
INSTALLING THE FRONT BRAKE CALIPER 6-28

FRONT FORK 6-30
REMOVING THE FRONT FORK LEGS 6-32
DISASSEMBLING THE FRONT FORK LEGS 6-32
CHECKING THE FRONT FORK LEGS 6-33
ASSEMBLING THE FRONT FORK LEGS 6-34

HANDLEBAR 6-37
REMOVING THE HANDLEBAR 6-39
CHECKING THE HANDLEBAR 6-39
INSTALLING THE HANDLEBAR 6-40

STEERING HEAD 6-42
REMOVING THE LOWER BRACKET 6-44
CHECKING THE STEERING HEAD 6-44
INSTALLING THE STEERING HEAD 6-45

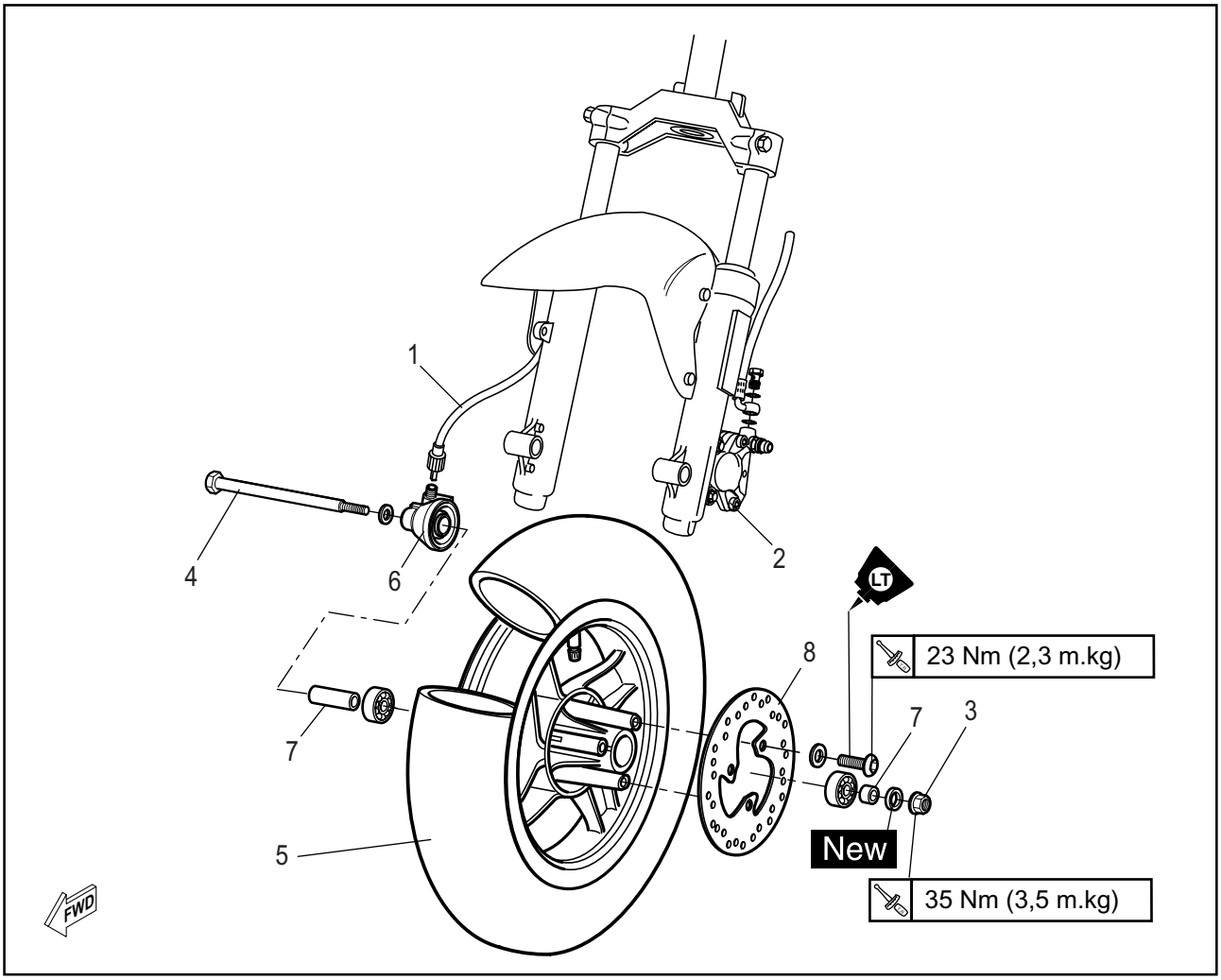
REAR SHOCK ABSORBER ASSEMBLY 6-46
CHECKING THE REAR SHOCK ABSORBER ASSEMBLY 6-47

EAS00513

CHASSIS

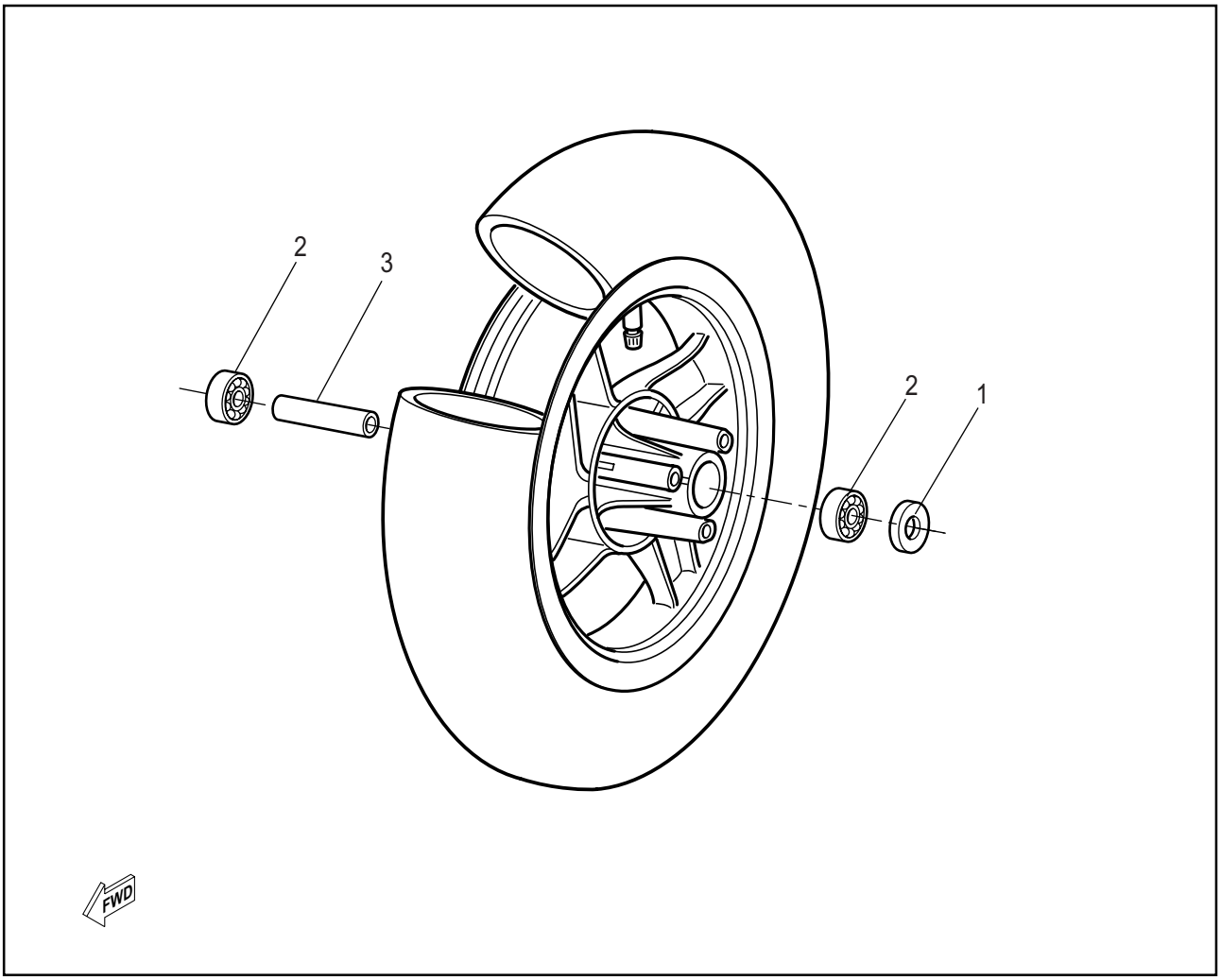
FRONT WHEEL AND BRAKE DISC

FRONT WHEEL AND BRAKE DISC



Order	Job/Part	Q'ty	Remarks
	Removing the front wheel and brake disc		Remove the parts in the order listed. **⚠ WARNING** **Securely support the scooter so there is no danger of it falling over.**
I	Disconnect:		**NOTE:**
1	Speedometer cable	1	Place the scooter on a suitable stand so that the front wheel is elevated.
II	Remove:		
2	Front brake caliper	1	
3	Wheel axle nut	1	
4	Wheel axle	1	
5	Front wheel assembly	1	Refer to "INSTALLING THE FRONT WHEEL"
6	Speedometer gear	1	
7	Collar	2	
8	Brake disc	1	
			For installation, reverse the removal procedure.

EAS00518
FRONT WHEEL



Order	Job/Part	Q'ty	Remarks
	Disassembling the front wheel		Remove the parts in the order listed.
I	Remove:		
1	Oil seal	1	Refer to "DISASSEMBLING/ASSEMBLING THE FRONT WHEEL" section.
2	Bearing	2	
3	Collar	1	
			For assembly, reverse the disassembly procedure.

EAS00520
REMOVING THE FRONT WHEEL

1. Stand the motorcycle on a level surface.

⚠ WARNING

Securely support the motorcycle so that there is no danger of it falling over.

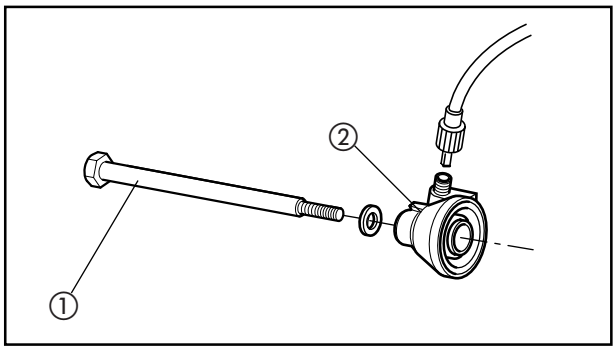
NOTE:

Place the motorcycle on a suitable stand so that the front wheel is elevated.

2. Disconnect:
   - Speedometer cable

3. Remove:
   - Front brake caliper

4. Loosen:
   - Axle nut



5. Remove:
   - Axle nut
   - Front wheel axle ①
   - Front wheel assembly
   - Speedometer gear ②
   - Collar
   - Front wheel
   - Brake disc

NOTE:

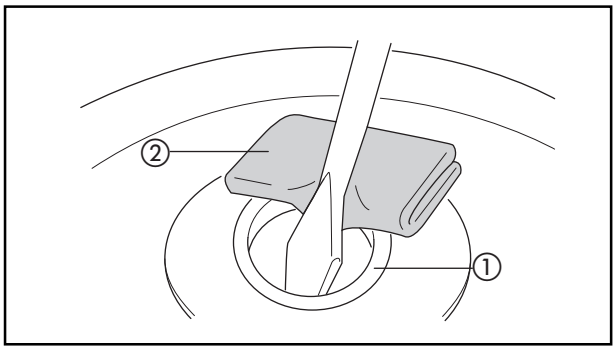
Never depress the brake lever when the wheel is off the scooter. Otherwise the brake pads will be forced out.

CAUTION:

Handle the wheel with care not to damage the brake disc. If the brake disc is damaged, replace it.

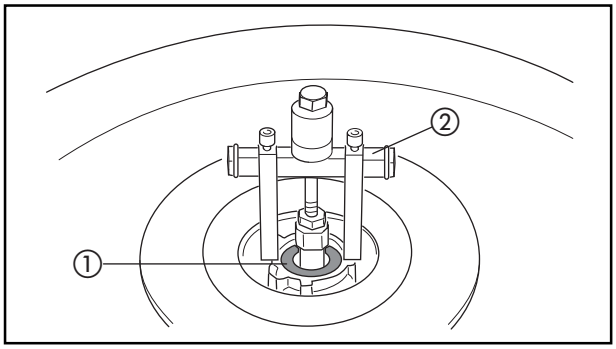
EAS00523
DISASSEMBLING THE FRONT WHEEL

1. Remove:
   - Oil seal
   - Wheel bearings



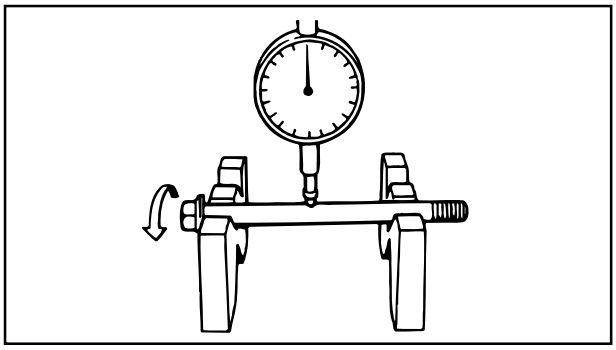
a. Clean the outside of the front wheel hub.
b. Remove the oil seal ① with a flat-head screwdriver.

NOTE:
To prevent damaging the wheel, place a rag ② between the screwdriver and the wheel surface.



c. Remove the wheel bearings ① with a general bearing puller ②.

2. Remove:
   • Collar

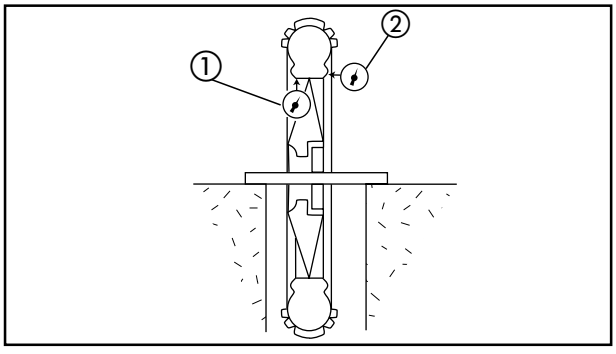


EAS00525
CHECKING THE FRONT WHEEL
1. Check:
   • Wheel axle
   Roll the wheel axle on a flat surface.
   Bends → Replace.

⚠ WARNING
Do not attempt to straighten a bent wheel axle.

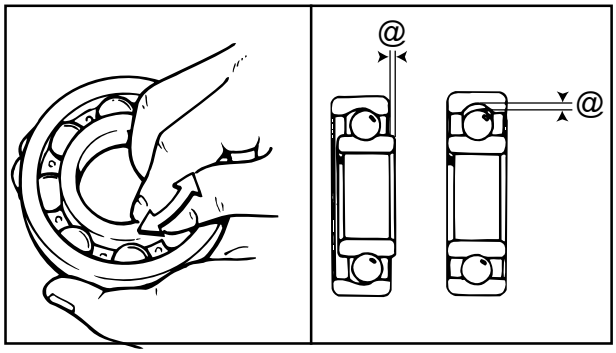
2. Check:
   • Tire
   • Front wheel
   Damage/wear → Replace.

Refer to "CHECKING THE TIRES" and "CHECKING THE WHEELS" in chapter 3.



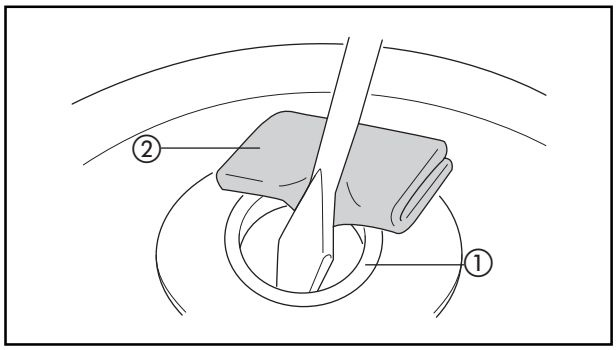
3. Measure:
   • Radial wheel runout ①
   • Lateral wheel runout ②
   Over the specified limits → Replace.

Radial wheel runout limit
1.0 mm
Lateral wheel runout limit
1.0 mm



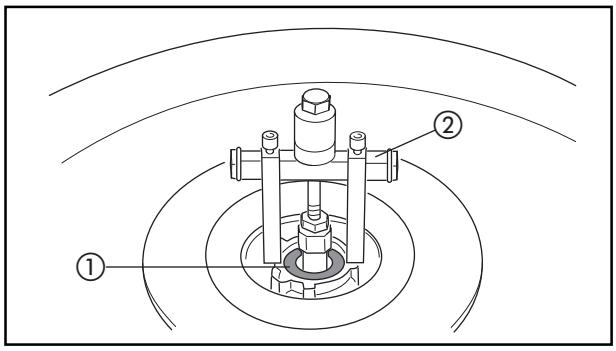
4. Check:
   • Wheel bearings
   Front wheel turns roughly or is loose → Replace the wheel bearings.
   • Oil seals
   Damage/wear → Replace.

5. Replace:
   • Wheel bearings New
   • Oil seals New

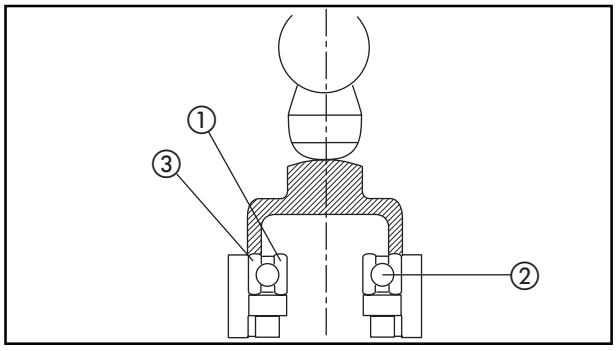


a. Clean the outside of the front wheel hub.
b. Remove the oil seals ① with a flat-head screwdriver.

NOTE:
To prevent damaging the wheel, place a rag ② between the screwdriver and the wheel surface.



c. Remove the wheel bearings ① with a general bearing puller ②.



d. Install the new wheel bearings and oil seals in the reverse order of disassembly.

CAUTION:
Do not contact the wheel bearing inner race ① or balls ②. Contact should be made only with the outer race ③.

NOTE:
Use a socket that matches the diameter of the wheel bearing outer race and oil seal.

6. Inspect:
   • Collar
   Wear/Damage → Replace collar and oil seal as set.

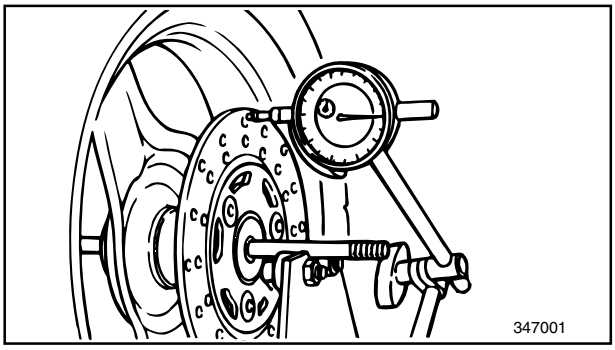
EAS00528
CHECKING THE BRAKE DISC

1. Check:
   • Brake disc
   Damage/galling → Replace.

2. Measure:
   • Brake disc deflection
   Out of specification → Inspect wheel runout.
   If wheel runout is in good condition, correct the brake disc deflection or replace the brake disc.

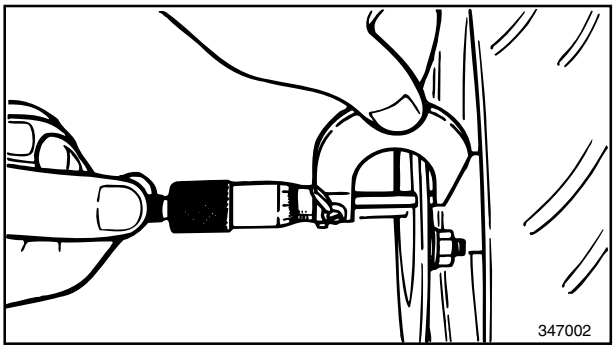
Brake disc deflection limit (maximum)
0.2 mm

a. Place the scooter on a suitable stand so that the front wheel is elevated.
b. Before measuring the front brake disc deflection, turn the handlebar to the left or right to ensure that the front wheel is stationary.
c. Remove the brake caliper.



d. Hold the dial gauge at a right angle against the brake disc surface.

e. Measure the deflection 2 ~ 3 mm below the edge of the brake disc.



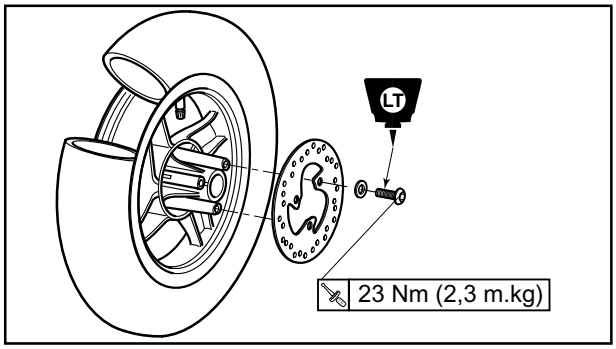
3. Measure:
   • Brake disc thickness
   Measure the brake disc thickness at a few different locations.
   Out of specification → Replace.

Brake disc thickness limit (minimum)
3.2 mm

4. Adjust:
   • Brake disc deflection

a. Remove the brake disc.
b. Rotate the brake disc by one bolt hole.
c. Install the brake disc.

NOTE:
Tighten the brake disc bolts in stages and in a crisscross pattern.

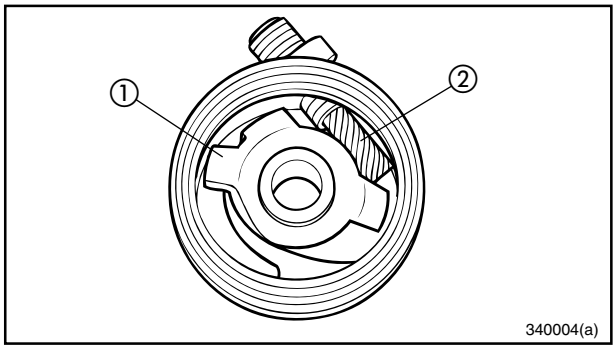


	Brake disc bolt **23 Nm (2.3 m • kg)**

d. Measure the brake disc deflection.
e. If out of specification, repeat the adjustment steps until the brake disc deflection is within specification.
f. If the brake disc deflection cannot be brought within specification, replace the brake disc.

EAS00535
CHECKING THE SPEEDOMETER GEAR UNIT

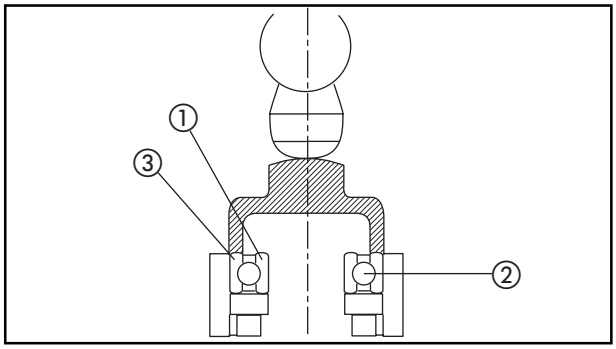
1. Check:
   • Speedometer clutch
   Bends/damage/wear → Replace.



2. Check:
   • Speedometer drive gear ①
   • Speedometer driven gear ②
   Damage/wear → Replace the speedometer gear unit.

EAS00539
ASSEMBLING THE FRONT WHEEL

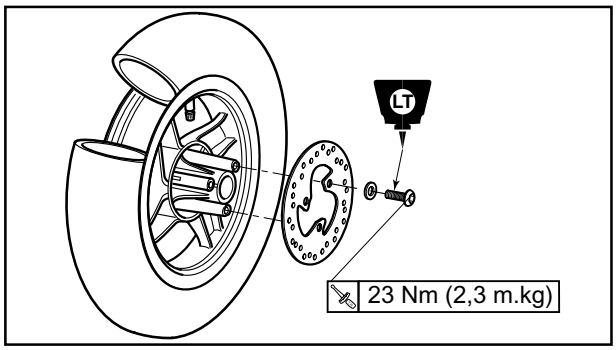
1. Install:
   • Wheel bearings
   • Oil seals New



a. Install the new wheel bearings and oil seals in the reverse order of disassembly.

CAUTION:
Do not contact the wheel bearing inner race ① or balls ②. Contact should be made only with the outer race ③.

NOTE:
Use a socket that matches the diameter of the wheel bearing outer race and oil seal.



EAS00542*

INSTALLING THE FRONT WHEEL

1. Lubricate:
   - Wheel axle
   - Wheel bearings
   - Oil seal lips
   - Speedometer drive gear
   - Speedometer driven gear

	Recommended lubricant **Lithium soap base grease**

2. Install:
   - Brake disc

	Brake disc bolt **23 Nm (2.3 m • kg)**

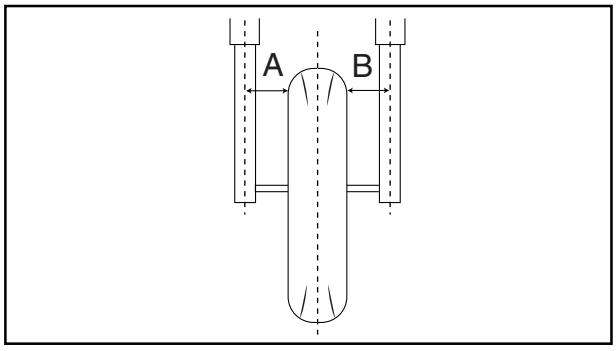
NOTE:

Tighten the brake disc bolts in stages and in a crisscross pattern.

3. Install:
   - Speedometer gear unit

NOTE:

Make sure the speedometer gear unit and the wheel hub are installed with the two projections meshed into the two slots respectively.



4. Install:
   - Front wheel

⚠ WARNING

Be sure to assemble the front wheel as shown.

Difference between A and B < 3 mm

5. Tighten:
   • Wheel axle
   • Brake caliper bolts

	Wheel axle **35 Nm (3.5 m • kg)** **Brake caliper bolt** **23 Nm (2.3 m • kg)**

⚠ WARNING

Make sure the brake hose is routed properly.

CAUTION:

Before tightening the axle nut, stroke the front fork several times to check for proper fork operation.

EAS00548

ADJUSTING THE FRONT WHEEL STATIC BALANCE

NOTE:

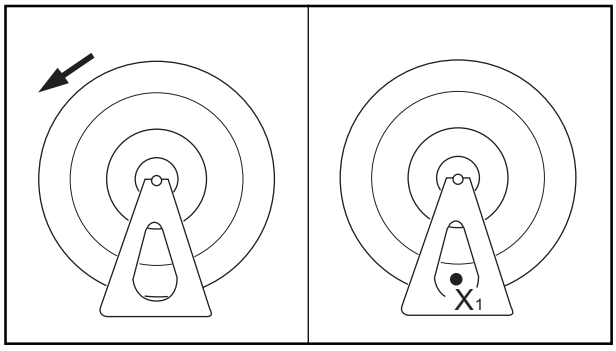
- After replacing the tire, wheel or both, the front wheel static balance should be adjusted.
- Adjust the front wheel static balance with the brake disc installed.

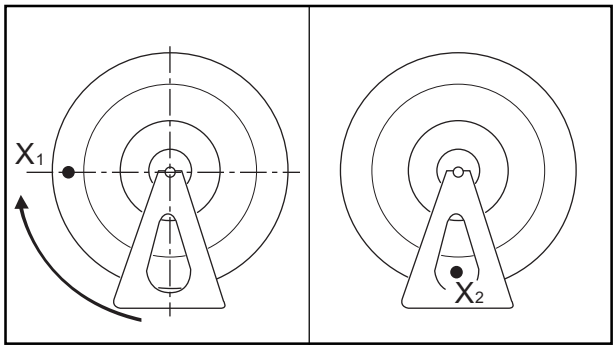
1. Remove:
   • Balancing weight(s)

2. Find:
   • Front wheel's heavy spot

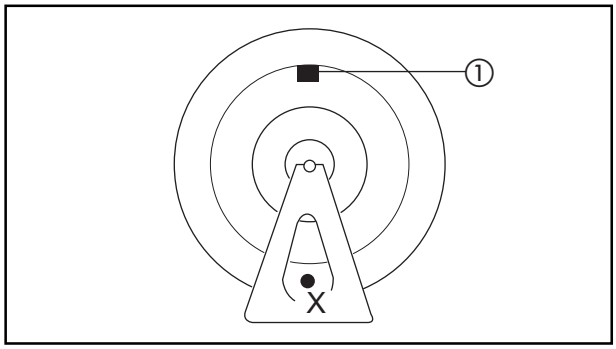
NOTE:

Place the front wheel on a suitable balancing stand.





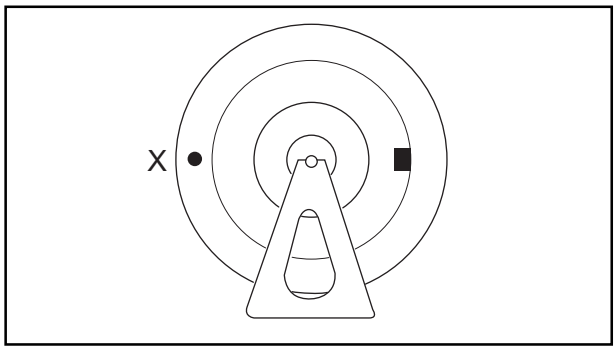
a. Spin the front wheel.
b. When the front wheel stops, put an "X1" mark at the bottom of the wheel.
c. Turn the front wheel 90° so that the "X1" mark is positioned as shown.
d. Release the front wheel.
e. When the wheel stops, put an "X2" mark at the bottom of the wheel.
f. Repeat steps (c) through (f) several times until all the marks come to rest at the same spot.
g. The spot where all the marks come to rest is the front wheel's heavy spot "X".



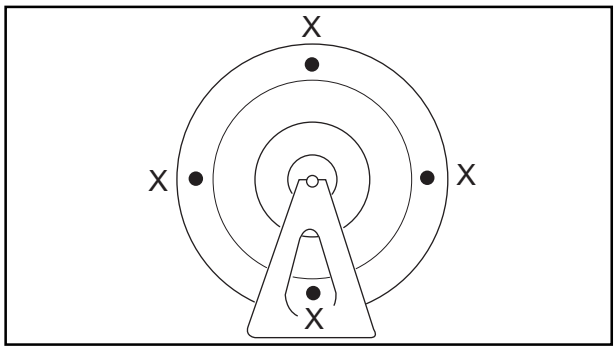
3. Adjust:
   • Front wheel static balance

a. Install a balancing weight ① onto the rim exactly opposite the heavy spot "X".

NOTE:
Start with the lightest weight.



b. Turn the front wheel 90° so that the heavy spot is positioned as shown.
c. If the heavy spot does not stay in that position, install a heavier weight.
d. Repeat steps (b) and (c) until the front wheel is balanced.

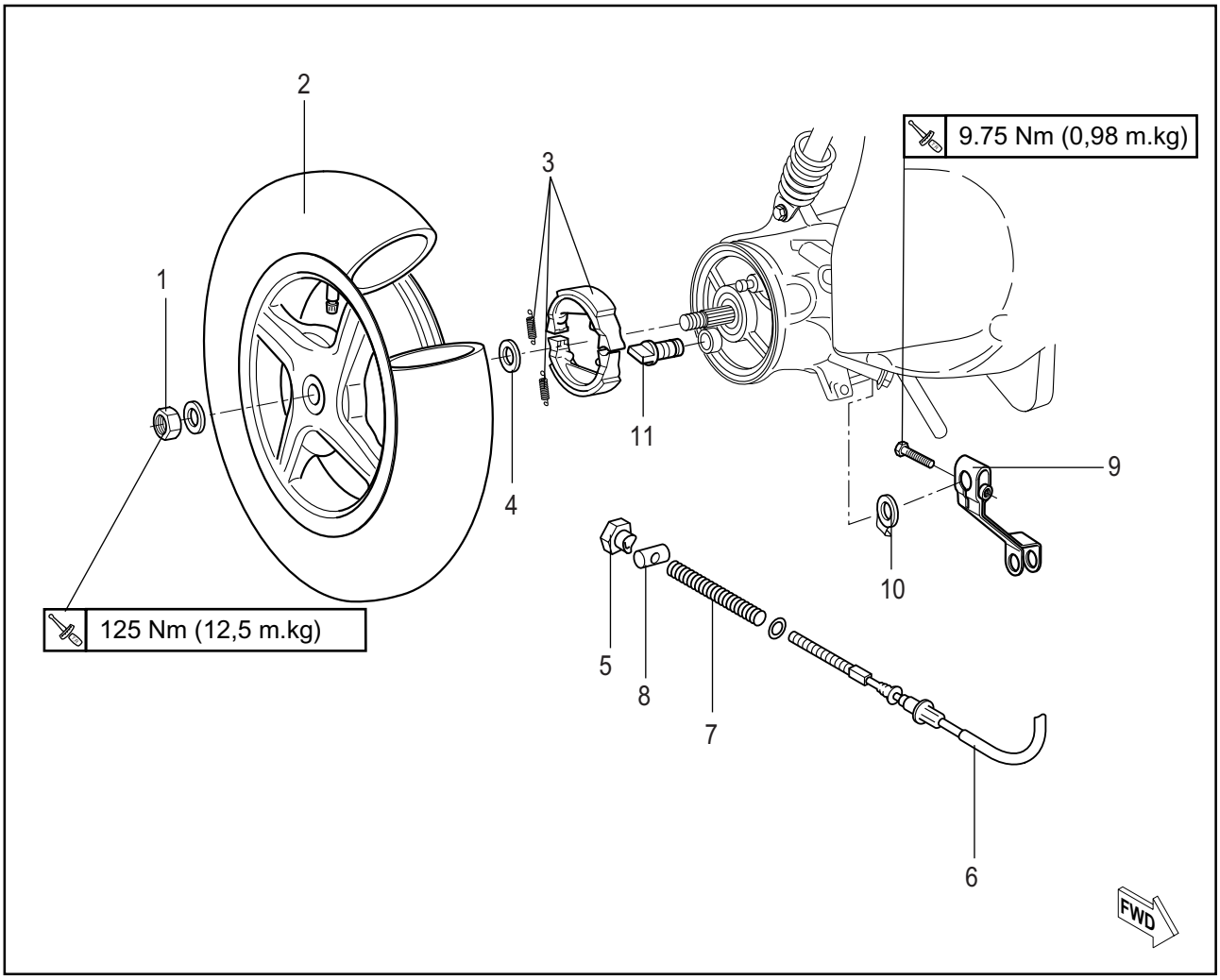


4. Check:
   • Front wheel static balance

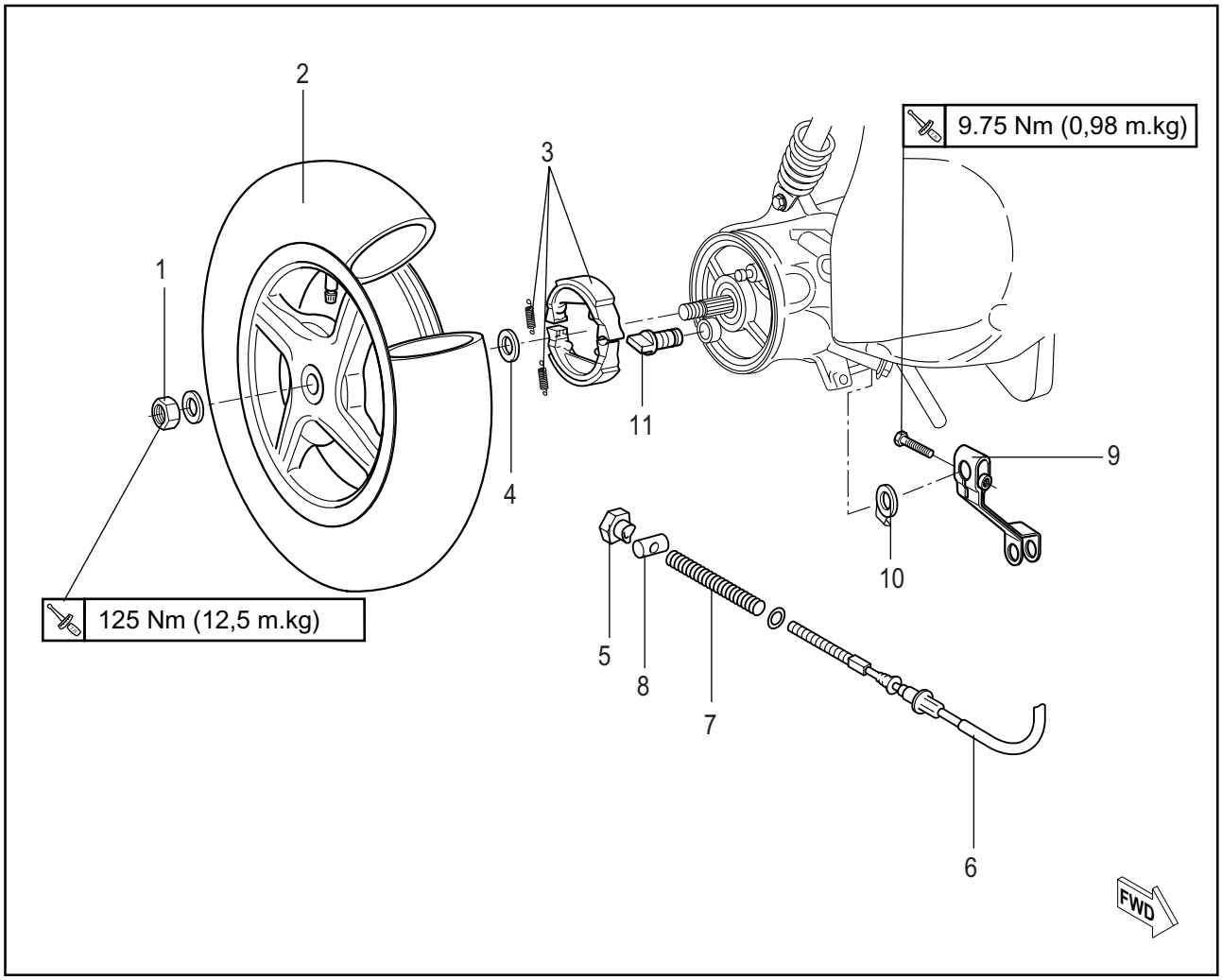
a. Turn the front wheel and make sure it stays at each position shown.
b. If the front wheel does not remain stationary at all of the positions, rebalance it.

EAS00555

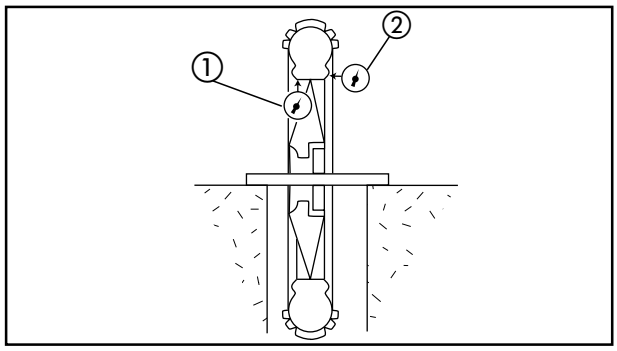
REAR WHEEL AND BRAKE



Order	Job/Part	Q'ty	Remarks
	Removing the rear wheel and the rear brake		Remove the parts in the order listed.
	Lower cover		Refer to "BATTERY COVER AND LOWER COVER" in chapter 3.
	Exhaust pipe		Refer to "EXHAUST PIPE" in Chapter 4.
			NOTE: Place the scooter on a suitable stand so that the rear wheel is elevated.
I	Remove:		
1	Rear axle nut (Nylstop)	1	Refer to "INSTALLING THE REAR WHEEL" section.
2	Rear wheel	1	
3	Brake shoe/brake shoe spring	2/2	
4	Plate washer	1	
5	Adjuster	1	
6	Brake cable	1	
7	Compression spring	1	



Order	Job/Part	Q'ty	Remarks
8	Pin	1	
9	Camshaft lever	1	Refer to "INSTALLING THE REAR BRAKE" section.
10	Wear indicator	1	
11	Brake camshaft	1	
			For installation, reverse the removal procedure.



EAS00565
CHECKING THE REAR WHEEL

1. Check:
   • Wheel axle
   • Rear wheel
   Refer to "FRONT WHEEL".

2. Check:
   • Tire
   • Rear wheel
   Damage/wear → Replace.

Refer to "CHECKING THE TIRES" and "CHECKING THE WHEELS" in chapter 3.

3. Measure:
   • Radial wheel runout ①
   • Lateral wheel runout ②

Refer to "FRONT WHEEL".

Radial wheel runout limit
1.0 mm
Lateral wheel runout limit
1.0 mm

EAS00569
CHECKING THE BRAKE

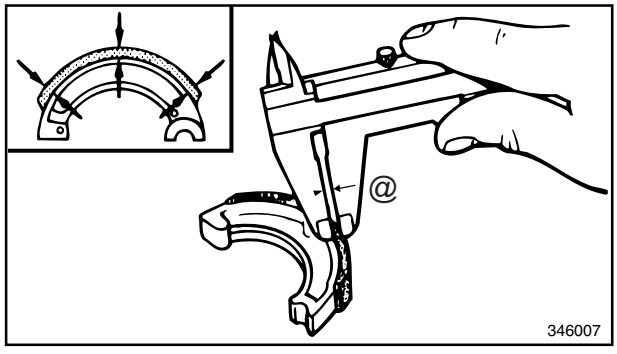
The following procedure applies to all of the brake shoes.

1. Check:
   • Brake shoe lining
   Glazed areas → Repair.

Sand the glazed areas with course sandpaper.

NOTE:
After sanding the glazed areas, clean the brake shoe with a cloth.

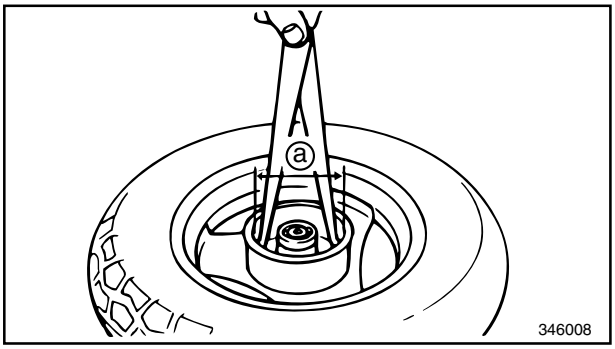
2. Measure:
   • Brake shoe lining thickness @
   Out of specification → Replace.



Brake shoe lining thickness limit (minimum)
2.0 mm

⚠ WARNING
Do not allow oil or grease to contact the brake shoes.

NOTE:
Replace the brake shoes as a set, if either is worn to the wear limit.



3. Measure:
   • Brake drum inside diameter ⓐ
   Out of specification → Replace the wheel.

Brake drum inside diameter limit (maximum)
130.5 mm

4. Check:
   • Brake drum inner surface
   Oil deposits → Clean.

Remove the oil with a rag soaked in lacquer thinner or solvent.

   Scratches → Repair.

Lightly and evenly polish the scratches with an emery cloth.

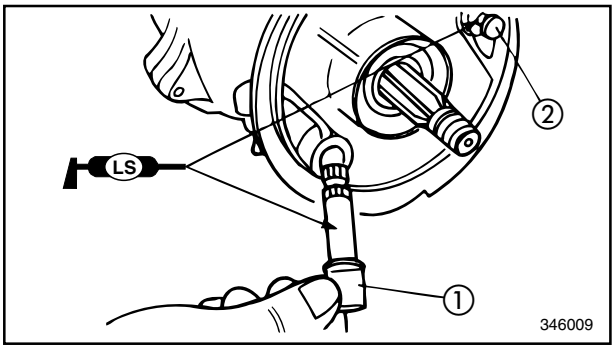
5. Check:
   • Brake camshaft
   Damage/wear → Replace.

⚠ WARNING

When inspecting the brake lining, do not spill oil or grease on the brake lining.

INSTALLING THE REAR BRAKE

Reverse the removal procedure.
Note the following points.



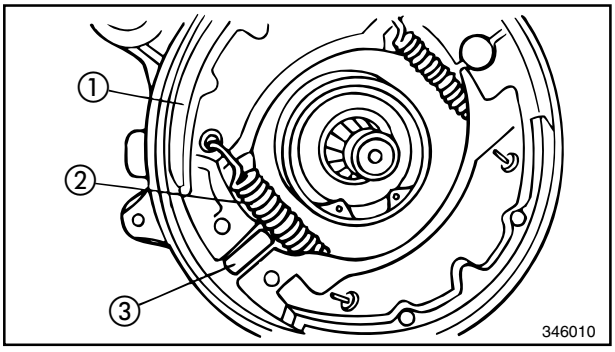
1. Install:
   • Brake camshaft ①

NOTE:

Apply lithium soap base grease onto the brake camshaft ① and pin ②.

CAUTION:

After installing the brake camshaft, remove the excess of grease.



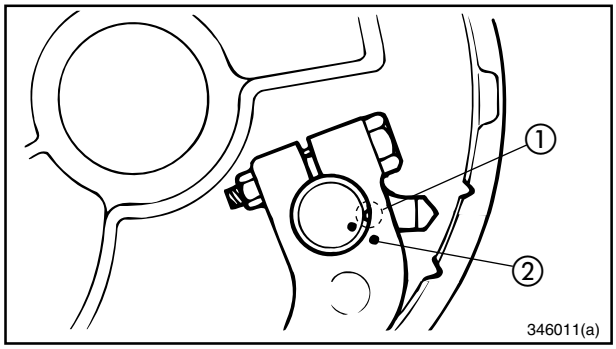
2. Install:
   • Tension springs ②
   • Brake shoes ①

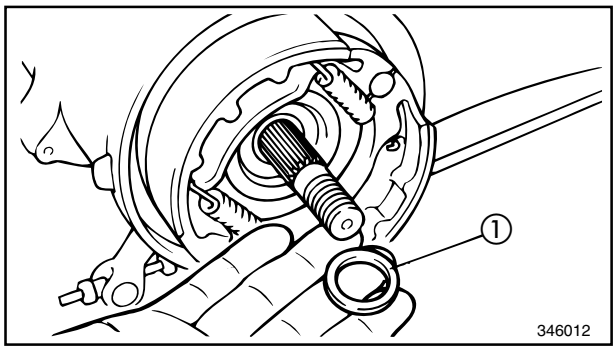
NOTE:

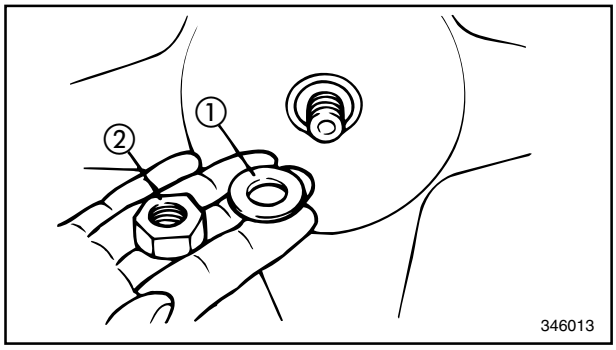
The punch mark ③ must point outwards.

CAUTION:

When installing the springs and the brake shoes, take care not to damage the springs.







3. Install:
   • Wear indicator ①
   • Camshaft lever ②

a. Align the projection ① on the wear indicator with the camshaft notch and install.
b. Align the punch marks ②.
c. Check the proper position of the brake shoe.

4. Install:
   • Plain washer ①
   • Pin
   • Compression spring
   • Brake cable
   • Adjuster

INSTALLING THE REAR WHEEL

Reverse the removal procedure.
Note the following points.

1. Clean:
   • Rear wheel axle

2. Install:
   • Rear wheel
   • Plain washer ①
   • Axle nut ②

	Rear axle nut: **125 Nm (12.5 m • kg)**

NOTE:

Make sure the splines on the wheel hub fit onto the rear drive axle.

3. Install:
   • Muffler

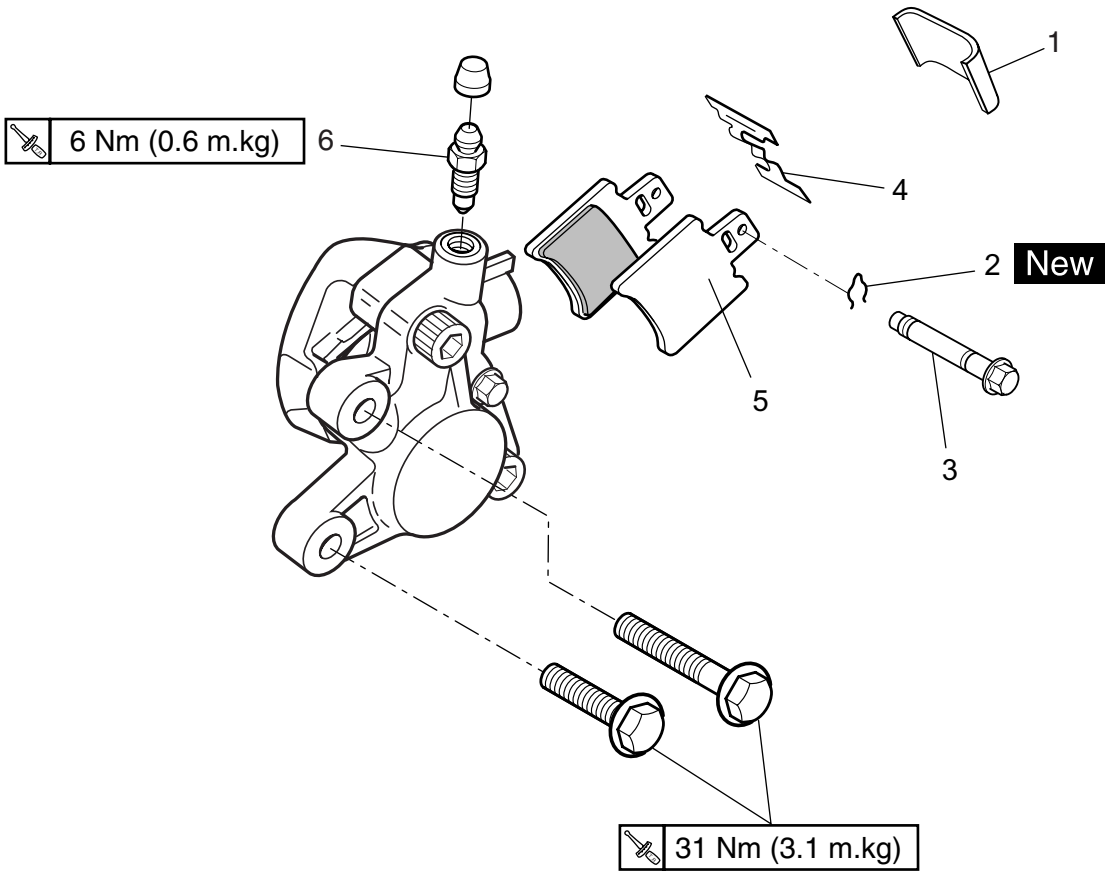
	Bolt (exhaust pipe): **8.5 Nm (0.85 m • kg)** **Bolt (muffler):** **29 Nm (2.9 m • kg)**

4. Adjust:
   • Rear brake lever free play
   Refer to "REAR BRAKE LEVER FREE PLAY ADJUSTMENT" in Chapter 3.

EAS00576

FRONT BRAKE

FRONT BRAKE PADS



Order	Job/Part	Q'ty	Remarks
	Removing the front brake pads		Remove the parts in the order listed.
I	Remove:		
1	Plastic cap	1	Refer to "BRAKE PAD REPLACEMENT" section.
2	Retaining clip	1	
3	Retaining pin	1	
4	Pad spring	1	
5	Brake pad	2	
6	Bleed screw	1	
			For installation, reverse the removal procedure.

EAS00579

CAUTION:

Disc brake components rarely require disassembly.
Therefore, always follow these preventive measures:

- **Never disassemble brake components unless absolutely necessary.**
- **If any connection on the hydraulic brake system is disconnected, the entire brake system must be disassembled, drained, cleaned, properly filled, and bled after reassembly.**
- **Never use solvents on internal brake components.**
- **Use only clean or new brake fluid for cleaning brake components.**
- **Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.**
- **Avoid brake fluid coming into contact with the eyes as it can cause serious injury.**
  FIRST AID FOR BRAKE FLUID ENTERING THE EYES:
  Flush with water for 15 minutes and get immediate medical attention.

Recommanded brake component replacement schedule:

Brake pads	**If necessary**
Brake hose	**Every two years**
Brake fluid	**Every two years or whenever the brake is disassembled**

⚠ WARNING

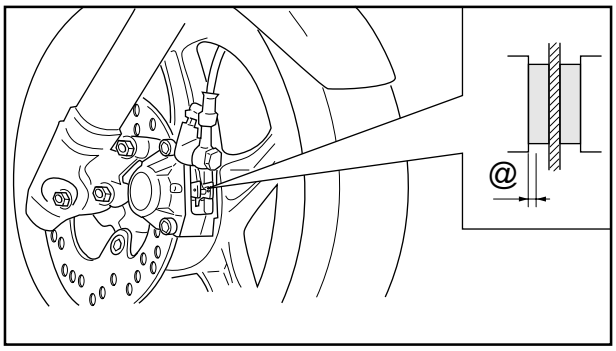
All internal parts should be cleaned in new brake fluid only. Do not use solvents as they will cause seals to swell and distort.

BRAKE PADS REPLACEMENT

NOTE:
It is not necessary to disassemble the brake caliper and brake hose to replace the brake pads.

1. Remove:
   • Brake pads

NOTE:
- Do not depress the brake lever when the wheel is off the scooter otherwise the brake pads will be forced shut.
- Install new brake pad springs when the brake pads have to be replaced.
- Replace the pads as a set if either is found to be worn to the wear limit @.



Wear limit @:
0.5 mm

2. Push the caliper piston into the brake caliper by finger.

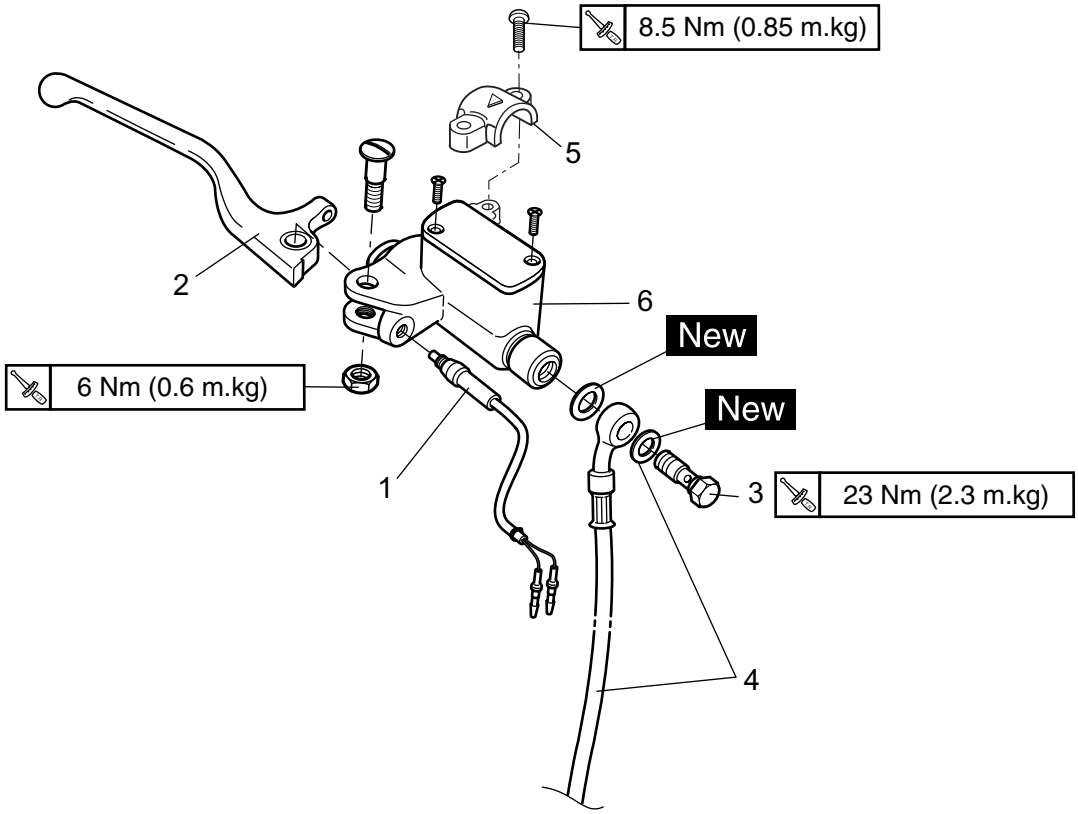
CAUTION:
When pushing the caliper piston into the brake caliper, brake fluid level in reservoir tank is increasing higher.

3. Install:
   • Brake pads New
   • Pad spring New

4. Inspect:
   • Brake fluid level
   Refer to "CHECKING THE BRAKE FLUID LEVEL" section in Chapter 3.

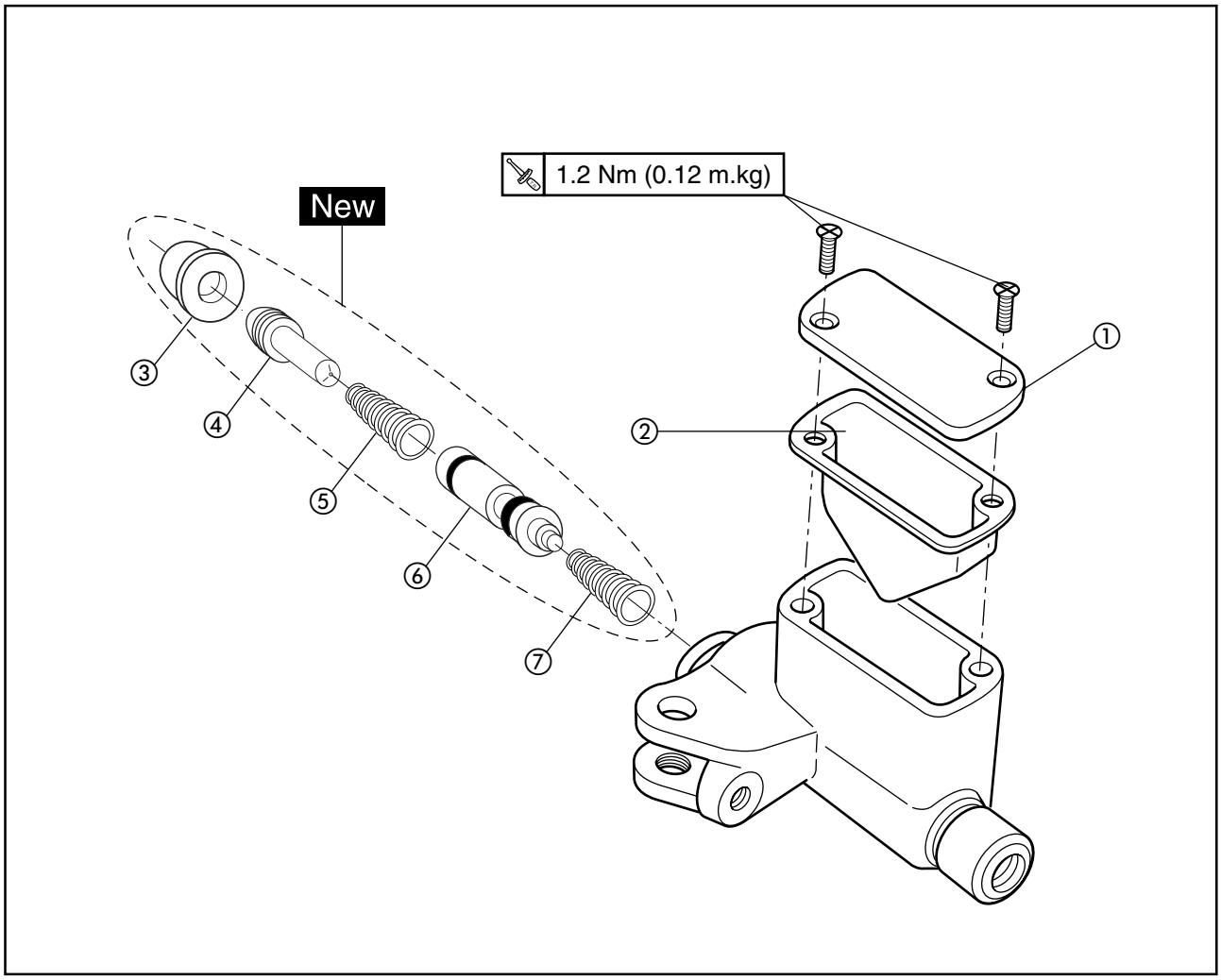
5. Check:
   • Brake lever operation
   Soft spongy feeling - Bleed the brake system.
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" section in Chapter 3.

EAS00584
FRONT BRAKE MASTER CYLINDER



Order	Job/Part	Q'ty	Remarks
	Removing the front brake master cylinder		Remove the parts in the order listed.
	Drain the brake fluid		
	Handlebar covers		Refer to “HANDLEBAR COVERS” in chapter 3
I	Remove:		
1	Brake switch	1	
2	Brake lever	1	
3	Union bolt	1	
4	Copper washer/Brake hose	2/1	
5	Master cylinder bracket	1	
II	Remove:		
6	Master cylinder	1	
			For installation, reverse the removal procedure.

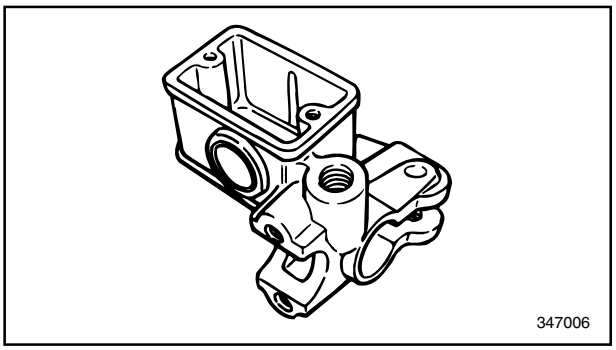
EAS00585



Order	Job/Part	Q'ty	Remarks
	Disassembling the master cylinder		Remove the parts in the order listed. **NOTE:** Drain completely before removing the master cylinder.
I	Remove:		
①	Master cylinder cap	1	
②	Diaphragm	1	
II	Remove:		
③	Dust boot	1	
④	Actuator	1	
⑤	Actuator spring	1	
⑥	Master cylinder piston	1	
⑦	Piston return spring	1	
			For installation, reverse the removal procedure.

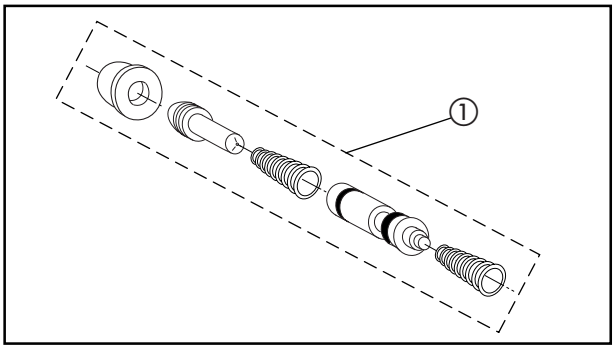
EAS00588
DISASSEMBLING THE FRONT BRAKE MASTER CYLINDER

NOTE:
- Before disassembling the front brake master cylinder, drain the brake fluid from the entire brake system.
- To collect any remaining brake fluid, place a container under the master cylinder and the end of the brake hose.

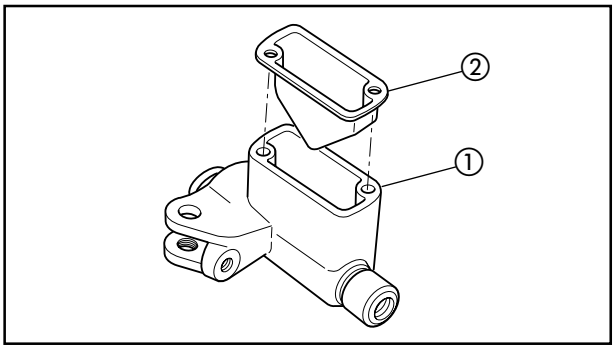


EAS00590
CHECKING THE FRONT BRAKE MASTER CYLINDER

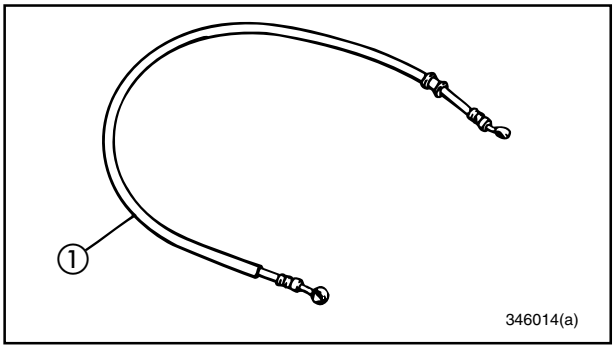
1. Check:
   • brake master cylinder
   Damage/scratches/wear → Replace.
   • brake fluid delivery passages
   (brake master cylinder body)
   Obstruction → Blow out with compressed air.



2. Check:
   • brake master cylinder kit ①
   Damage/scratches/wear → Replace.



3. Check:
   • brake master cylinder reservoir ①
   Cracks/damage → Replace.
   • brake master cylinder reservoir diaphragm ②
   Damage/wear → Replace.



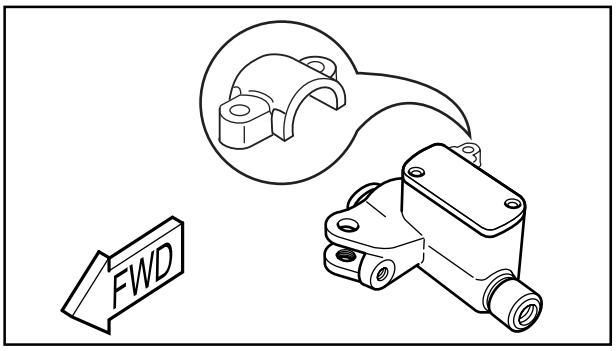
4. Check:
   • brake hoses ①
   Cracks/damage/wear → Replace.

EAS00596
ASSEMBLING AND INSTALLING THE FRONT BRAKE MASTER CYLINDER

⚠ WARNING
- **Before installation, all internal brake components should be cleaned and lubricated with clean or new brake fluid.**
- **Never use solvents on internal brake components.**

Recommended brake fluid
DOT #3 or DOT #4

1. Install:
   - master cylinder kit New
   In the master cylinder.

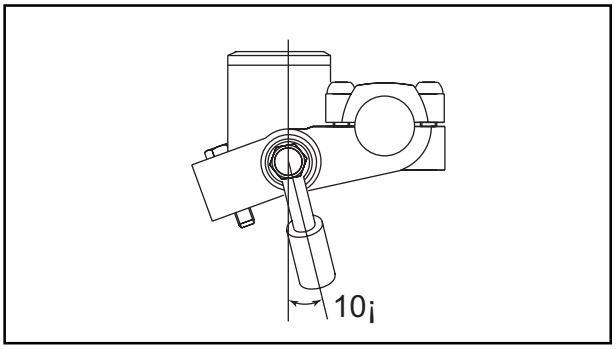


2. Install:
   - brake master cylinder
   - brake master cylinder bracket

3. Install:
   - copper washers New
   - brake hose
   - union bolt

Union bolt
23 Nm (2.3 m • kg)

⚠ WARNING
Proper brake hose routing is essential to insure safe scooter operation. Refer to "CABLE ROUTING" in Chapter 2.



NOTE:
- While holding the brake hose, tighten the union bolt as shown.
- Turn the handlebar to the left and to the right to make sure the brake hose does not touch other parts (e.g., wire harness, cables, leads). Correct if necessary.

4. Fill:
   • brake master cylinder reservoir
   (with the specified amount of the recommended brake fluid)

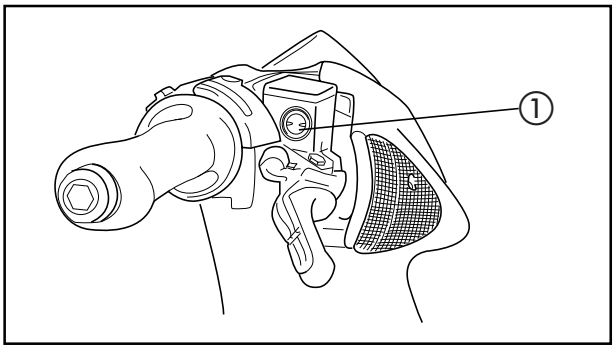
	Recommended brake fluid **DOT #3 or DOT #4**

⚠ WARNING

- **Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.**
- **Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.**
- **When refilling, be careful that water does not enter the brake master cylinder reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.**

CAUTION:

Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.

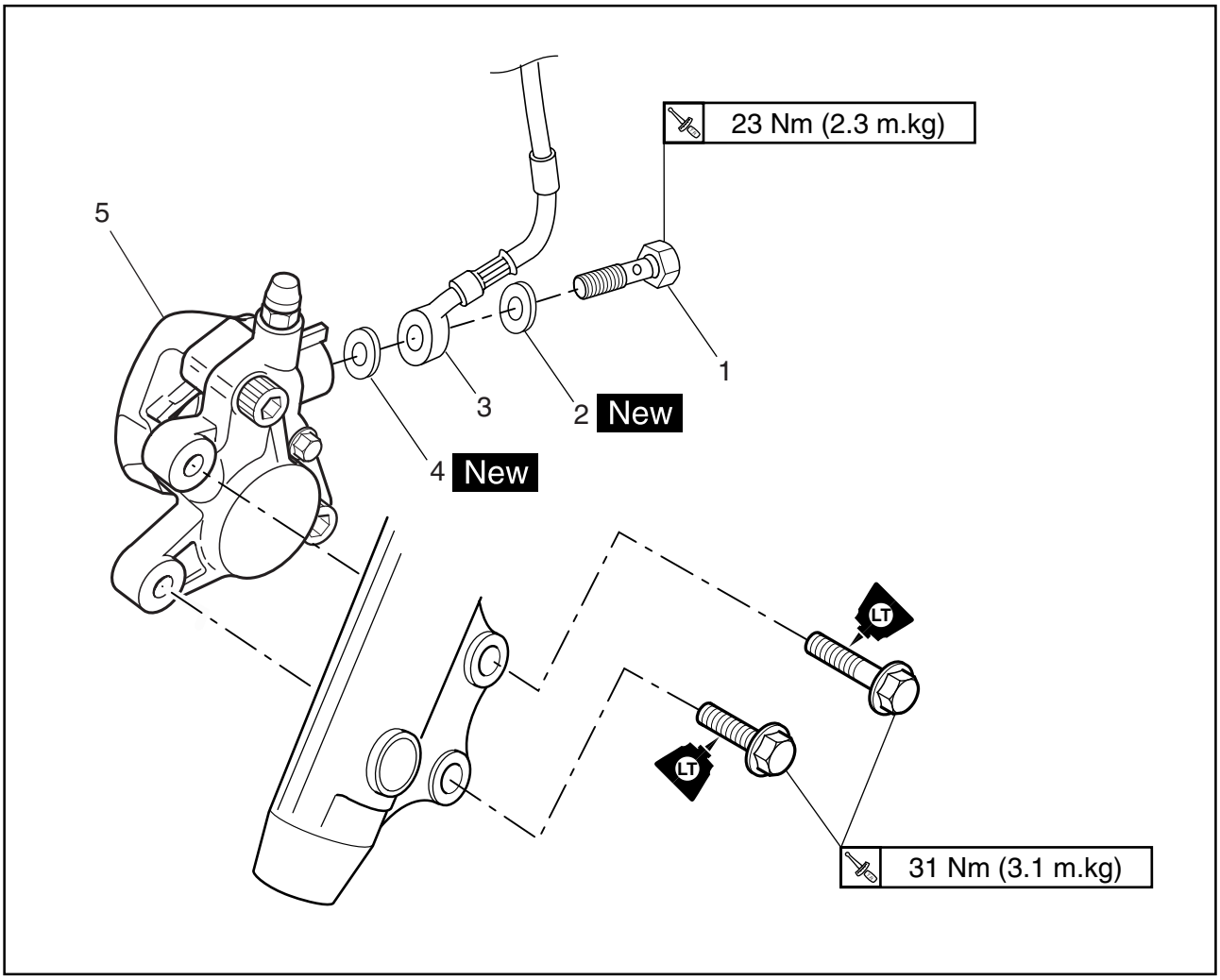


5. Bleed:
   • brake system
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.

6. Check:
   • brake fluid level
   Below the minimum level mark ① → Add the recommended brake fluid to the proper level.
   Refer to "CHECKING THE BRAKE FLUID LEVEL" in chapter 3.

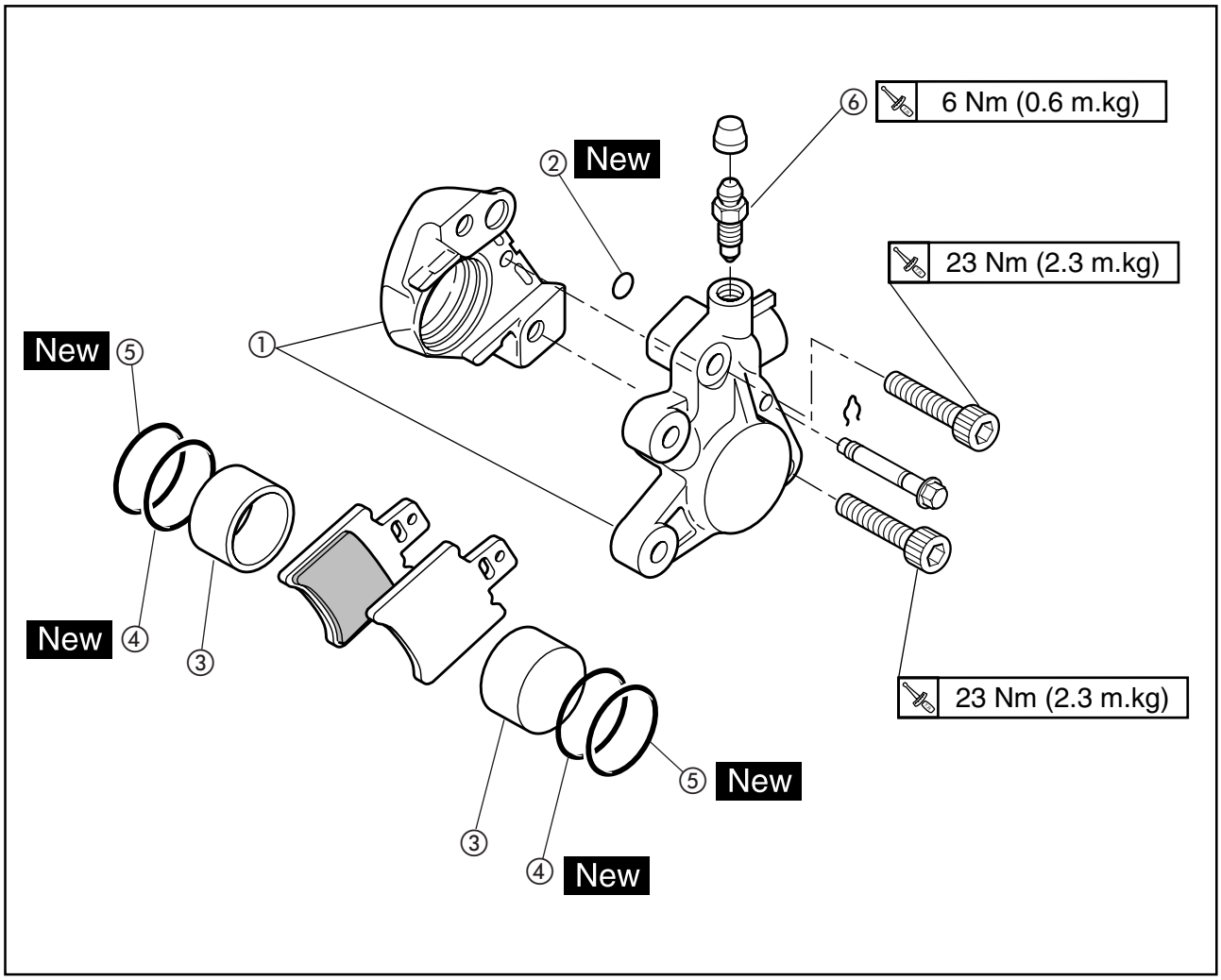
7. Check:
   • brake lever operation
   Soft or spongy feeling → Bleed the brake system.
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.

EAS00612
FRONT BRAKE CALIPER



Order	Job name/Part name	Q'ty	Remarks
	Removing the front brake caliper		Remove the parts in the order listed.
	Drain the brake fluid		
I	Remove:		
1	Union bolt	1	
2	Copper washer	1	
3	Brake hose	1	
4	Copper washer	1	
II	Remove:		
5	Brake caliper	1	
			For installation, reverse the removal procedure.

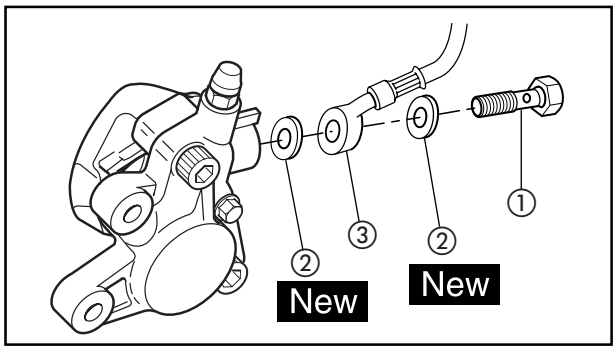
EAS00614



Order	Job/Part	Q'ty	Remarks
	Caliper disassembly Brake pads		Remove the parts in the order listed. Refer to "REMOVING THE FRONT BRAKE PADS".
I	Remove:		
①	Caliper	1	Refer to "DISASSEMBLING THE FRONT BRAKE CALIPER".
②	O-ring	1	
③	Caliper piston	2	
④	Dust seal	2	
⑤	Piston seal	2	
⑥	Bleed screw	1	
			For installation, reverse the removal procedure.

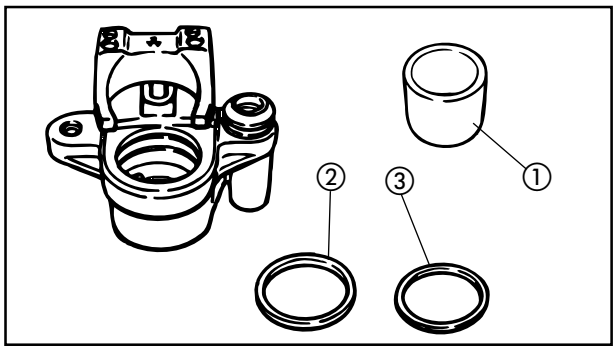
EAS00620
DISASSEMBLING THE FRONT BRAKE CALIPER

NOTE:
Before disassembling the brake caliper, drain the brake fluid from the entire brake system.



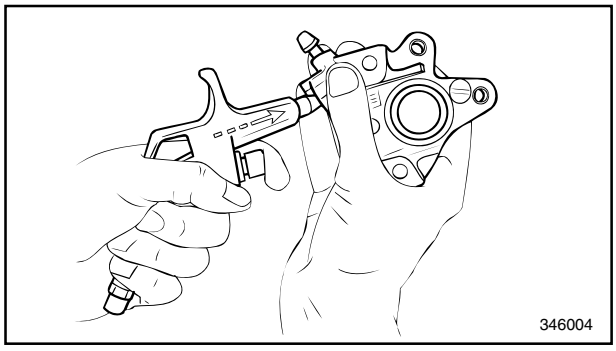
1. Remove:
   - Union bolt ①
   - Copper washers ②
   - Brake hose ③

NOTE:
Put the end of the brake hose into a container and pump out the brake fluid carefully.



2. Remove:
   - Brake caliper pistons ①
   - Brake caliper piston seals ② and ③

a. Secure the right side brake caliper piston with a piece of wood.
b. Blow compressed air into the brake hose joint opening to force out the left side piston from the brake caliper.



⚠ WARNING
- **Never try to pry out the brake caliper pistons.**
- **Do not loosen the bolts.**

CAUTION:
Carefully remove the caliper piston to prevent damage.

c. Remove the brake caliper piston seals.

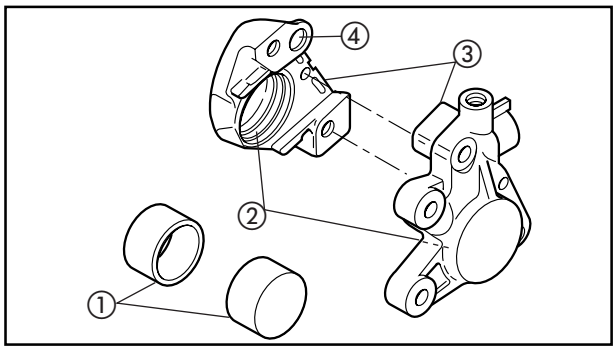
CAUTION:
- **Do not use a sharp instrument. Remove seals by your finger.**
- **Do not re-use removed parts.**

d. Repeat the previous steps to force out the right side piston from the brake caliper.

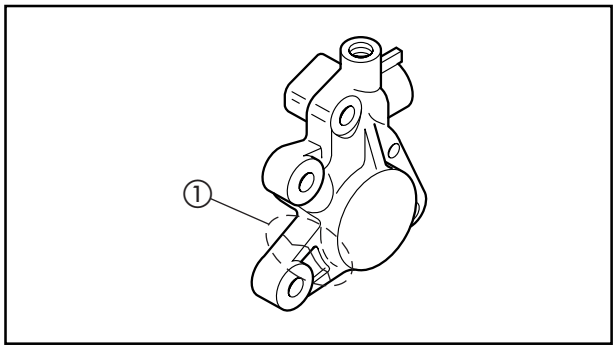
EAS00631
CHECKING THE FRONT BRAKE CALIPER

Recommanded brake component replacement schedule:

Brake pads	**If necessary**
Brake hose	**Every two years**
Brake fluid	**Every two years or whenever the brake is disassembled**



1. Check:
   • brake caliper pistons ①
   Rust/scratches/wear → Replace the brake caliper.
   • brake caliper cylinders ②
   Scratches/wear → Replace the brake caliper.
   • Dust/piston seals
   Damaged → Replace the brake caliper.
   • brake caliper body ③
   Cracks/damaged → Replace the brake caliper.
   • brake fluid delivery passages ④
   (brake caliper body)
   Obstruction → Blow out with compressed air.



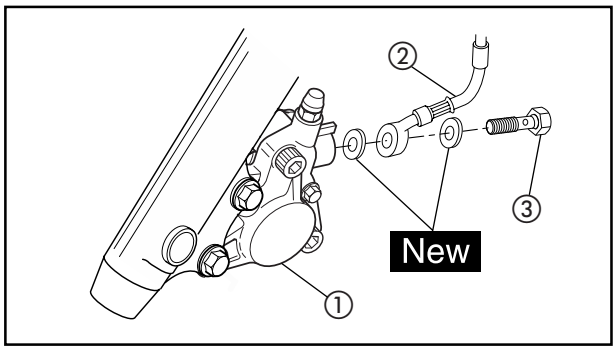
2. Check:
   • brake caliper bracket ①
   Cracks/damage → Replace the brake caliper.

EAS00635
INSTALLING THE FRONT BRAKE CALIPER

⚠ WARNING

Before installation, all internal brake components should be cleaned and lubricated with clean or new brake fluid.

Recommended brake fluid
DOT #3 or DOT #4



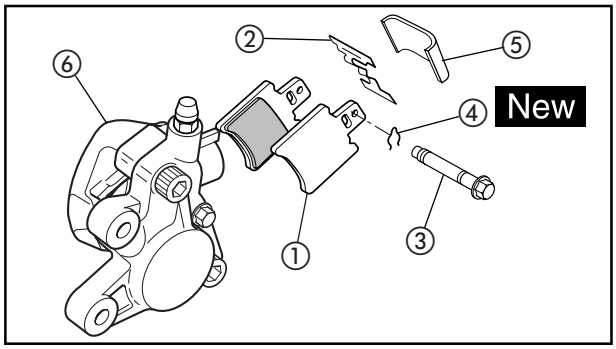
1. Install:
   - brake caliper ①
   (temporarily)
   - copper washers New
   - brake hose ②
   - union bolt ③

Union bolt
23 Nm (2.3 m • kg)

⚠ WARNING

Proper brake hose routing is essential to insure safe scooter operation. Refer to "CABLE ROUTING".

2. Remove:
   - brake caliper



3. Install:
   - brake pads ①
   - brake pads springs ②
   - brake pads retaining pin ③
   - brake pads retaining clip ④
   - Brake pads cap ⑤
   - brake caliper ⑥

   Refer to "REPLACING THE BRAKE PADS".

Brake caliper bolt
31 Nm (3.1 m • kg)

4. Fill:
   • brake master cylinder reservoir
   (with the specified amount of the recommended brake fluid)

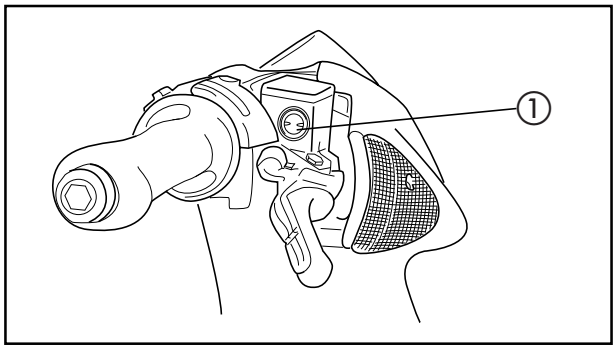
Recommended brake fluid
DOT #3 or DOT #4

⚠ WARNING

- **Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.**
- **Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.**
- **When refilling, be careful that water does not enter the brake master cylinder reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.**

CAUTION:

Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.



5. Bleed:
   • brake system
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.

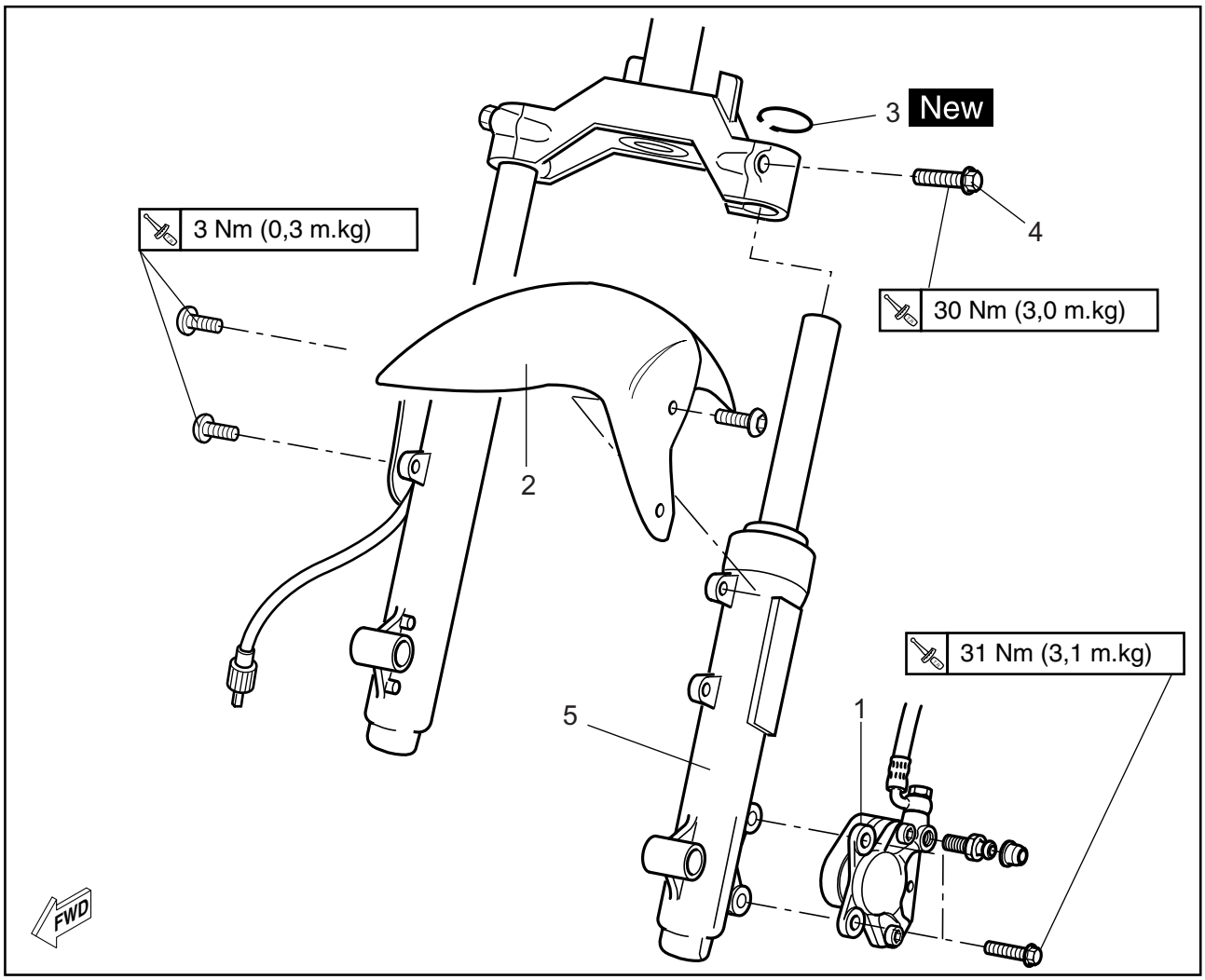
6. Check:
   • brake fluid level
   Below the minimum level mark ① → Add the recommended brake fluid to the proper level.
   Refer to "CHECKING THE BRAKE FLUID LEVEL" in chapter 3.

7. Check:
   • brake lever operation
   Soft or spongy feeling → Bleed the brake system.
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.

EAS00646

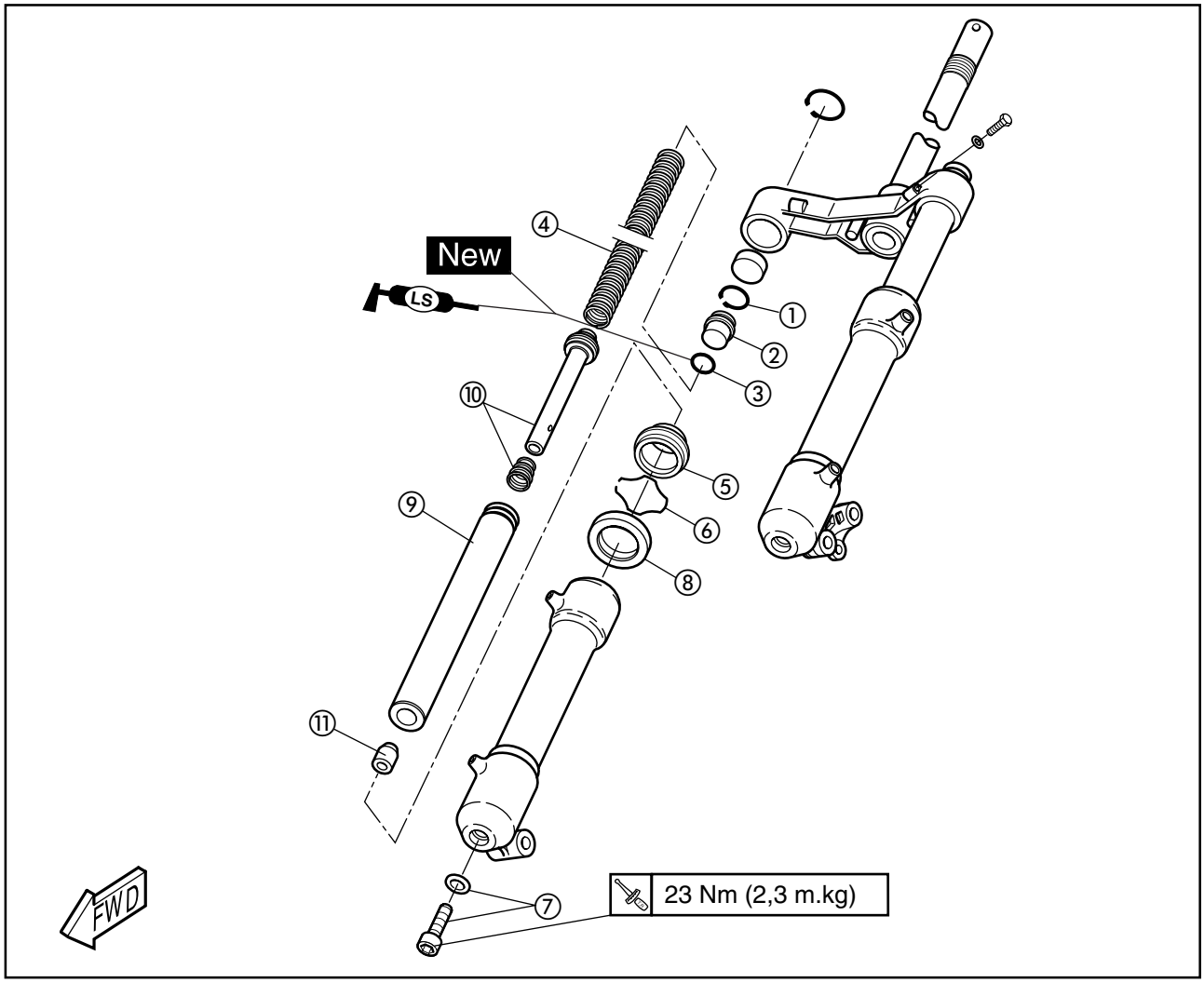
FRONT FORK

FRONT FORK



Order	Job/Part	Q'ty	Remarks
	Removing the front fork		Remove the parts in the order listed.
	Front wheel		Refer to "FRONT WHEEL AND BRAKE DISC".
I	Remove:		
1	Caliper assembly	1	
2	Front fender	1	
II	Remove:		Refer to "REMOVING THE FRONT FORK LEGS".
3	Clip	2	
4	Pinch bolt	2	
5	Front fork leg	2	
			For installation, reverse the removal procedure.

EAS00648



Order	Job/Part	Q'ty	Remarks
	Disassembling the front fork		Remove the parts in the order listed.
I	Remove:		
①	Spring seat clip	2	
②	Spring seat	2	
③	O-ring	2	
④	Fork spring	2	
II	Remove:		Refer to "ASSEMBLING THE FRONT FORK LEGS".
⑤	Dust seal	2	
⑥	Retaining clip	2	
⑦	Damper rod bolt / gasket	2/2	
⑧	Oil seal	2	
⑨	Inner tube	2	
⑩	Damper rod / damper rod spring	2/2	
⑪	Oil flow stopper	1	
			For installation, reverse the removal procedure.

REMOVING THE FRONT FORK LEGS

The following procedure applies to both of the front fork legs.

1. Stand the scooter on a level surface.

⚠ WARNING

Securely support the scooter so that there is no danger of it falling over.

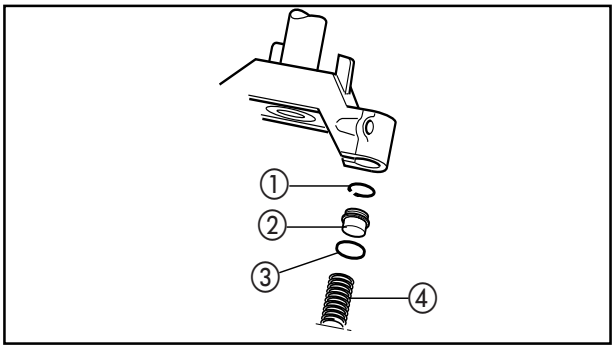
NOTE:

Place the scooter on a suitable stand so that the front wheel is elevated.

EAS00654

DISASSEMBLING THE FRONT FORK LEGS

The following procedure applies to both of the front fork legs.



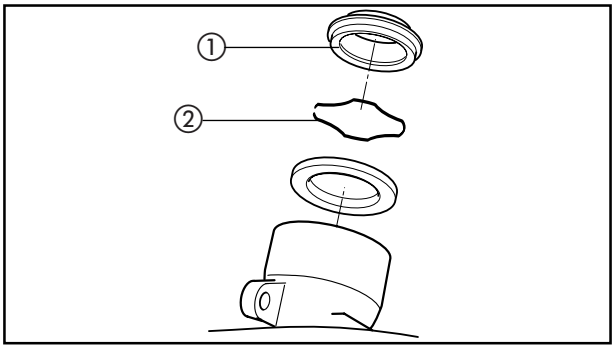
1. Remove:
   - spring seat clip ①
   - spring seat ②
   - o-ring ③
   - fork spring ④

a. Hold the inner tube vertically.
b. Securely clamp the inner tube in a vise with soft jaws.

CAUTION:

Do not scratch the inner tube.

c. Press down on the spring seat with a suitable bar.
d. While pressing down on the spring seat, remove the spring seat clip with a thin, flat-head screwdriver.
e. Remove the spring seat, the o-ring and spring.



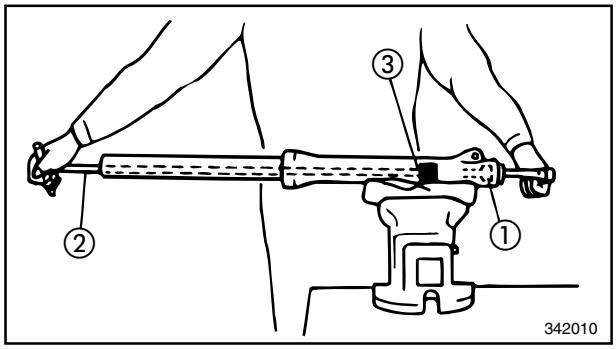
2. Drain:
   - fork oil

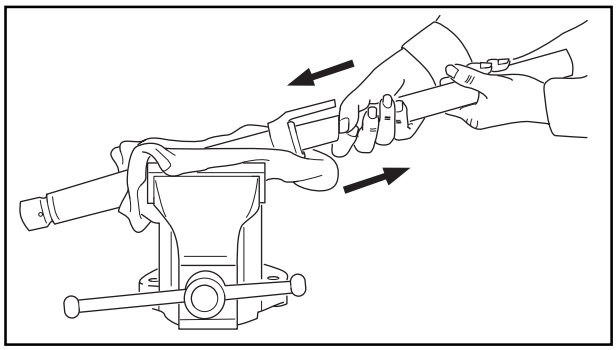
3. Remove:
   - dust seal ①
   - oil seal clip ②

   (with a flat-head screwdriver)

CAUTION:

Do not scratch the inner tube.





4. Remove:
   • damper rod assembly bolt

NOTE:
While holding the damper rod assembly with the damper rod holder ③ and T-handle ②, loosen the damper rod assembly bolt ①.

Damper rod holder
90890-01294
T-Handle
90890-01326

5. Remove:
   • inner tube

a. Hold the front fork leg horizontally.
b. Securely clamp the brake caliper bracket in a vise with soft jaws.
c. Separate the inner tube from the outer tube by pulling the inner tube forcefully but carefully.

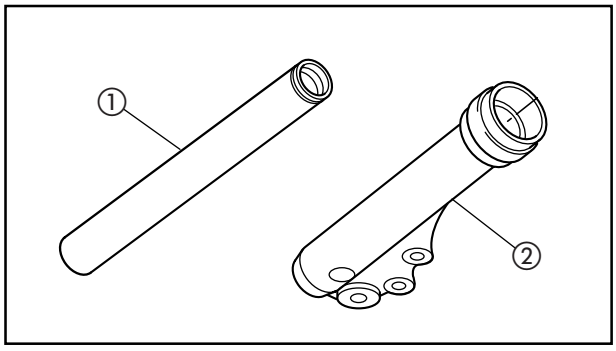
CAUTION:
Avoid bottoming the inner tube into the outer tube during the above procedure, as the oil flow stopper will be damaged.

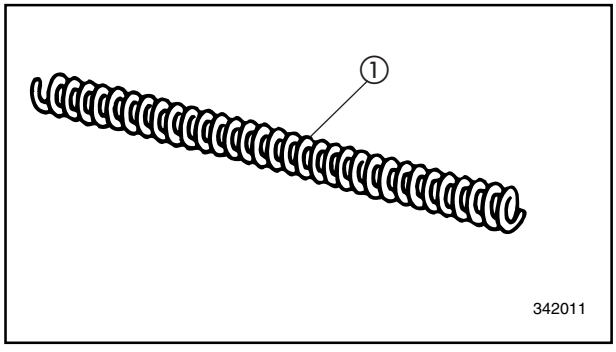
EAS00656
CHECKING THE FRONT FORK LEGS

The following procedure applies to both of the front fork legs.

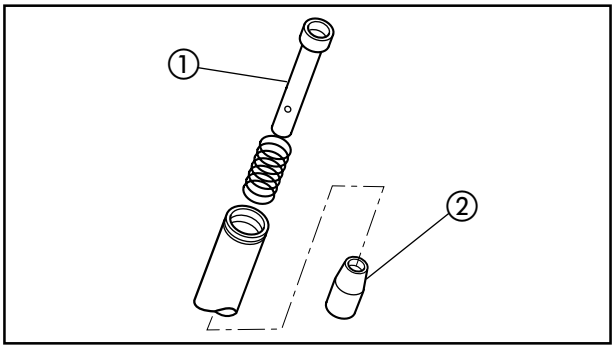
1. Check:
   • inner tube ①
   • outer tube ②
   Bends/damage/scratches → Replace.

⚠ WARNING
Do not attempt to straighten a bent inner tube as this may dangerously weaken it.





2. Inspect:
   • fork spring ①
   Damage → Replace.



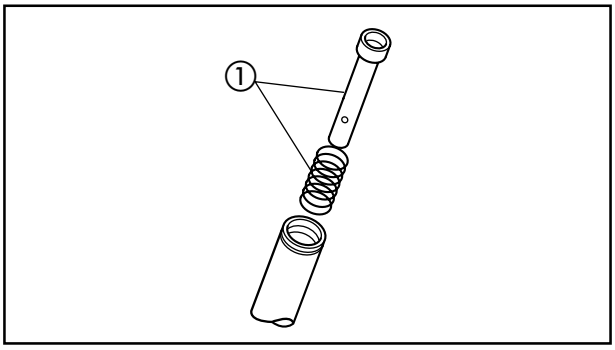
3. Check:
   • damper rod ①
   Damage/wear → Replace.
   Obstruction → Blow out all of the oil passages with compressed air.

   • oil flow stopper ②
   Damage → Replace.

EAS00659
ASSEMBLING THE FRONT FORK LEGS
The following procedure applies to both of the front fork legs.

NOTE:
When assembling the front fork leg, be sure to replace the following parts:
- oil seals
- dust seals

Before assembling the front fork leg, make sure all of the components are clean.

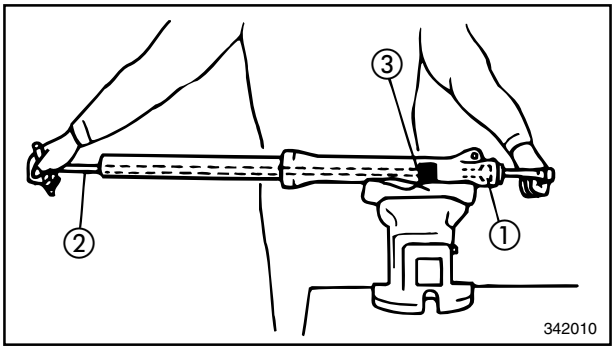


1. Install:
   • damper rod assembly ①

CAUTION:
Allow the damper rod assembly to slide slowly down the inner tube until it protrudes from the bottom of the inner tube. Be careful not to damage the inner tube.

2. Lubricate:
   • inner tube's outer surface

Recommended lubricant
Fork oil
(ISO 6743/4-LHV 46 or SAE 10)



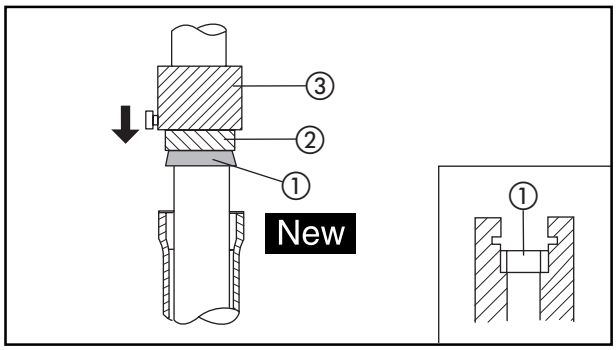
3. Tighten:
   • damper rod assembly bolt

Damper rod assembly bolt
23 Nm (2.3 m • kg)

NOTE:
While holding the damper rod assembly with the damper rod holder ③ and T-handle ②, tighten the damper rod assembly bolt ①.

Damper rod holder
90890-01294
T-handle
90890-01326

4. Install:
   • oil seal ①
   (with the fork seal driver weight ② and fork seal driver attachment ③)

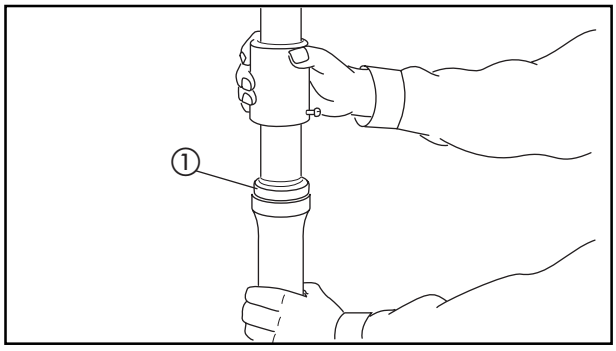


Fork seal driver weight
90890-01367
Fork seal driver attachment
90890-01400

CAUTION:
Make sure the numbered side of the oil seal faces up.

NOTE:
- Before installing the oil seal, lubricate its lips with lithium soap base grease.
- Lubricate the outer surface of the inner tube with fork oil.
- Before installing the oil seal, cover the top of the front fork leg with a plastic bag to protect the oil seal during installation.

5. Install:
   • oil seal clip



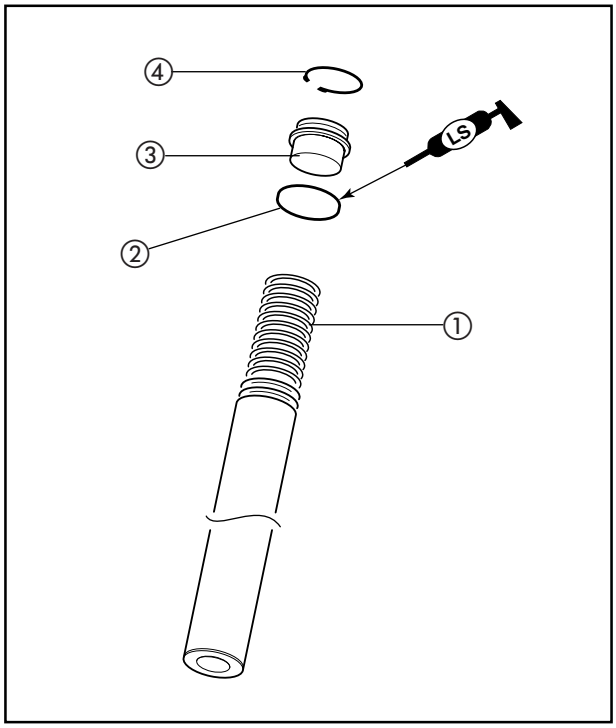
NOTE:
Adjust the oil seal clip so that it fits into the outer tube's groove.

6. Install:
   • dust seal ①
   (with the fork seal driver weight)

Fork seal driver weight
90890-01367

7. Fill:
   • front fork leg
   (with the specified amount of the recommended fork oil)

Fork oil type
ISO 6743/4-LHV 46 or SAE 10
Quantity (left front fork leg only)
75 cc/ leg

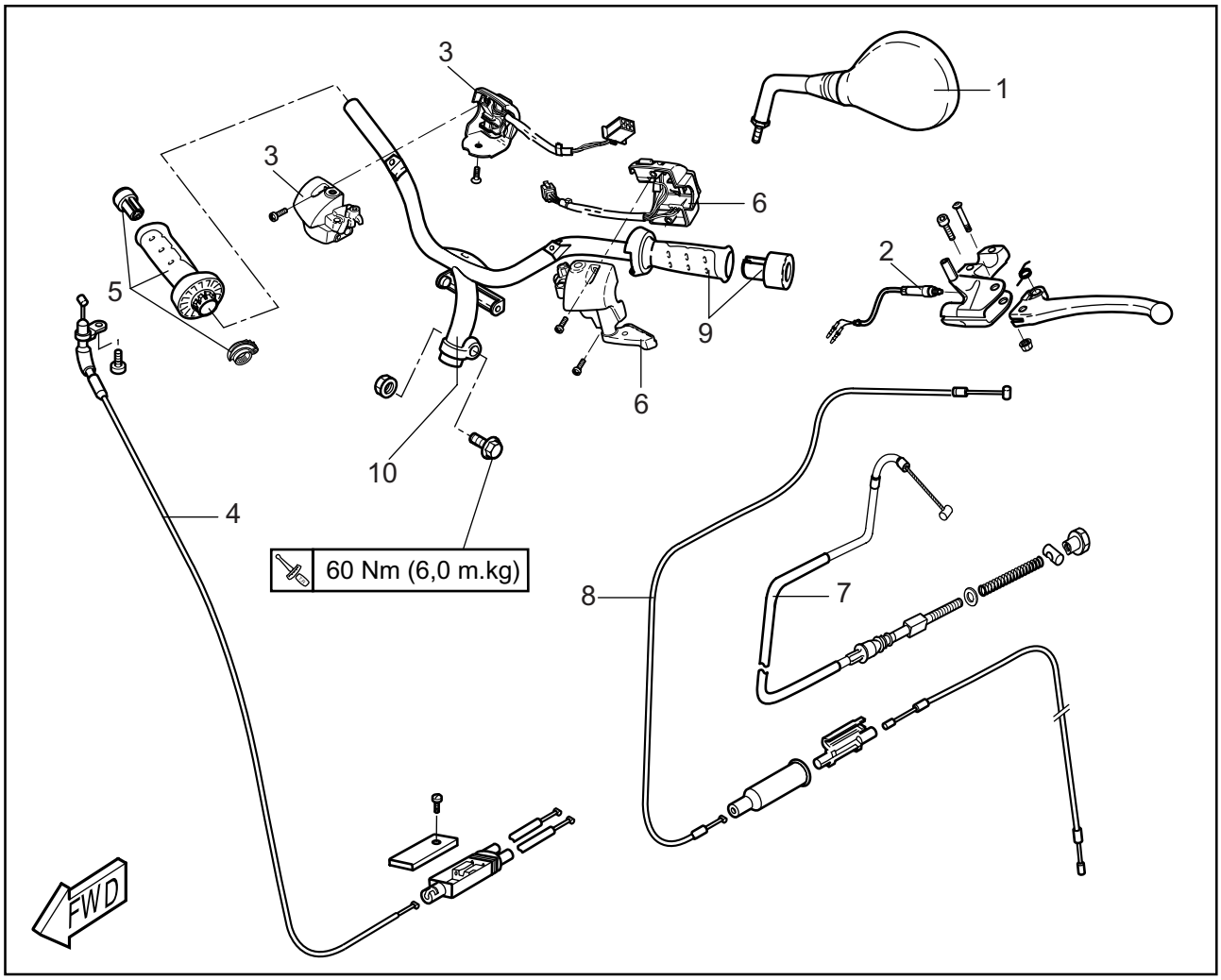


NOTE:
- While filling the front fork leg, keep it upright.
- After filling, slowly pump the front fork leg up and down to distribute the fork oil.

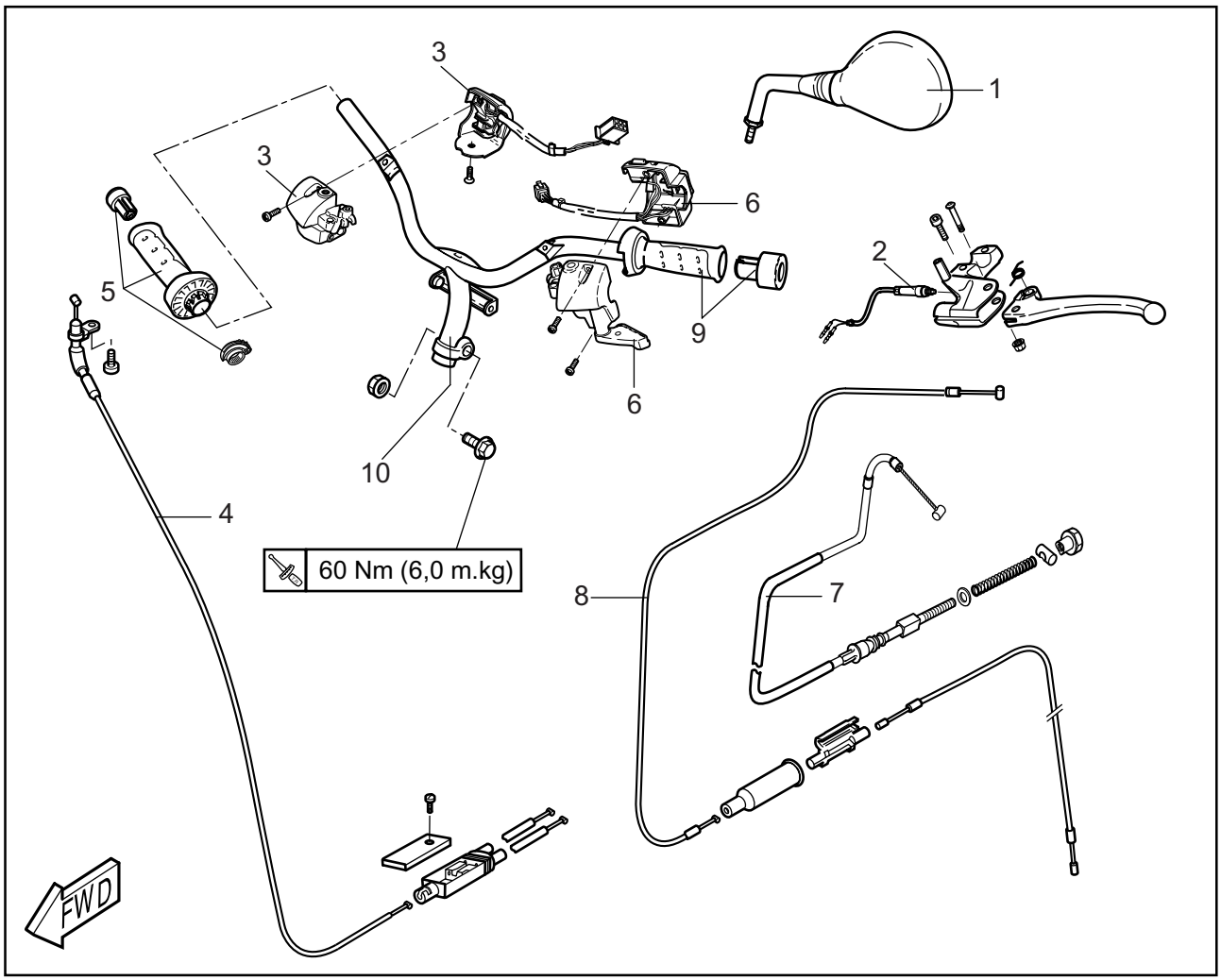
8. Install:
   - spring ①
   - o-ring ②
   - spring seat ③
   - spring seat clip ④

NOTE:
Before installing the spring seat, lubricate its O-ring with grease.

HANDLEBAR



Order	Job/Part	Q'ty	Remarks
	Removing the handlebar		Remove the parts in the order listed.
	Handlebar covers		Refer to "COVERS" in Chapter 3.
I	Disconnect:		
	Stop switch	2	
	Handlebar switch	2	
II	Remove:		
1	Rear view mirror	1	
2	Stop switch	2	
	Front master cylinder	1	Refer to "MASTER CYLINDER".
3	Handlebar switch (right)	1	Refer to "INSTALLING THE HANDLEBAR".
4	Throttle cable	1	
5	Throttle grip assembly	1	



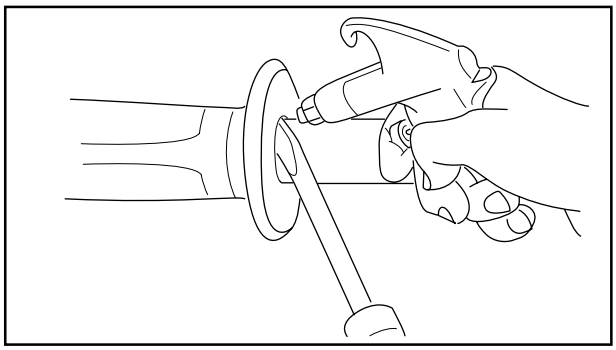
Order	Job/Part	Q'ty	Remarks
6	Handlebar switch (left)	1	
7	Rear brake cable	1	Refer to "INSTALLING THE HANDLEBAR".
8	Starter cable	1	
9	Left grip	1	
10	Handlebar	1	
			For installation, reverse the removal procedure.

EAS00666
REMOVING THE HANDLEBAR

1. Stand the scooter on a level surface.

⚠ WARNING

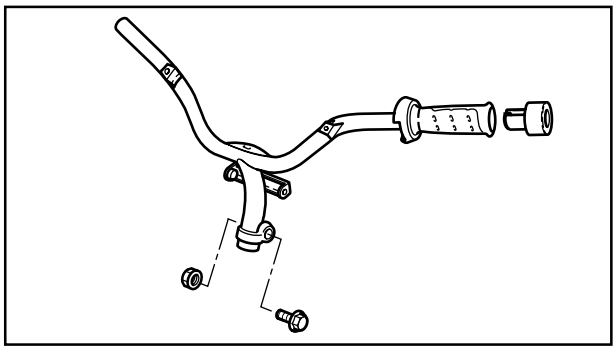
Securely support the scooter so that there is no danger of it falling over.



2. Remove:
   • handlebar grip

NOTE:

Blow compressed air between the handlebar and the handlebar grip, and gradually push the grip off the handlebar.



EAS00668
CHECKING THE HANDLEBAR

1. Check:
   • handlebar

Bends/cracks/damage → Replace.

⚠ WARNING

Do not attempt to straighten a bent handlebar as this may dangerously weaken it.

2. Install:
   • handlebar grip

a. Apply a thin coat of rubber adhesive onto the left end of the handlebar.
b. Slide the handlebar grip over the left end of the handlebar.
c. Wipe off any excess rubber adhesive with a clean rag.

⚠ WARNING

Do not touch the handlebar grip until the rubber adhesive has fully dried.

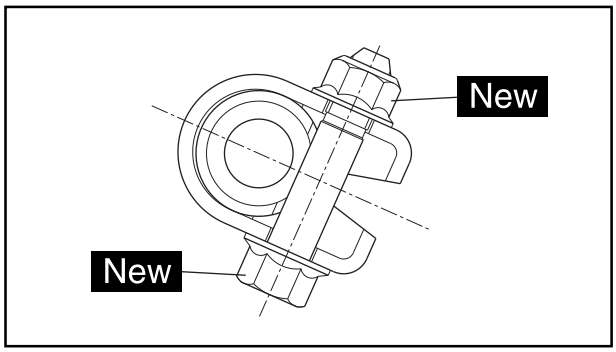
EAS00673
INSTALLING THE HANDLEBAR

1. Stand the scooter on a level surface.

⚠ WARNING

Securely support the scooter so that there is no danger of it falling over.

2. Install:
   • handlebar



NOTE:

Install the handlebar onto the steering shaft notch.

CAUTION:

- **Before installing the handlebar, wipe off any trace of oil from the inserted section of the shaft with solvent.**
- **Insert the bolt from the left as shown.**

3. Tighten:
   • handlebar holder

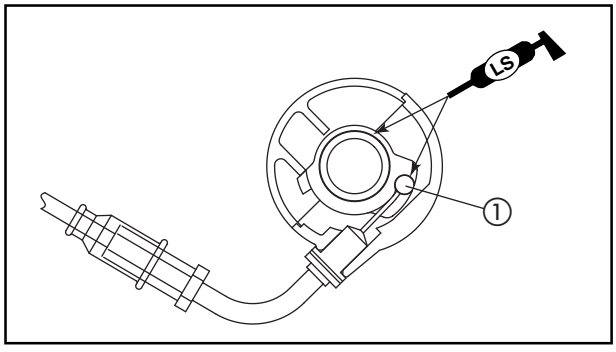
	Handlebar holder bolt **60 Nm (6.0 m • kg)**

4. Fasten:
   • wire harness
   (to the handlebar bracket)
   Refer to "CABLE ROUTING" in chapter 2.

5. Install:
   • left handlebar switch

NOTE:

Align the projection on the left handlebar switch with the hole in the handlebar.



6. Install:
   • throttle cable ①
   • throttle grip

NOTE:

- Lubricate the inside of the throttle grip with a thin coat of lithium soap base grease and install it onto the handlebar.
- Apply lithium soap base grease onto the cable end and throttle cable support.

7. Install:
   • right handlebar switch

⚠ WARNING

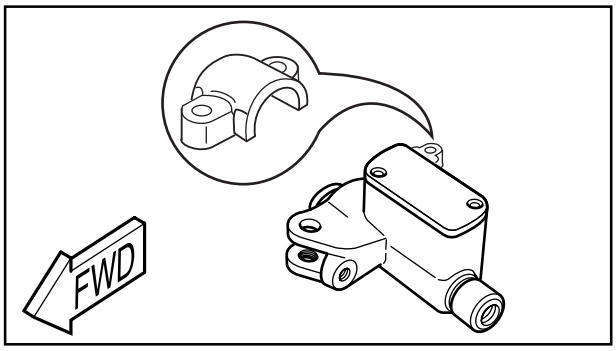
Make sure the throttle grip operates smoothly.

NOTE:

Align the projection on the right handlebar switch with the hole in the handlebar.

8. Adjust:
   • throttle cable free play
   Refer to "ADJUSTING THE THROTTLE CABLE FREE PLAY" in chapter 3.

Throttle cable free play (at the flange of the throttle grip)
1.5 ~ 3.0 mm



9. Install:
   • master cylinder
   • master cylinder bracket

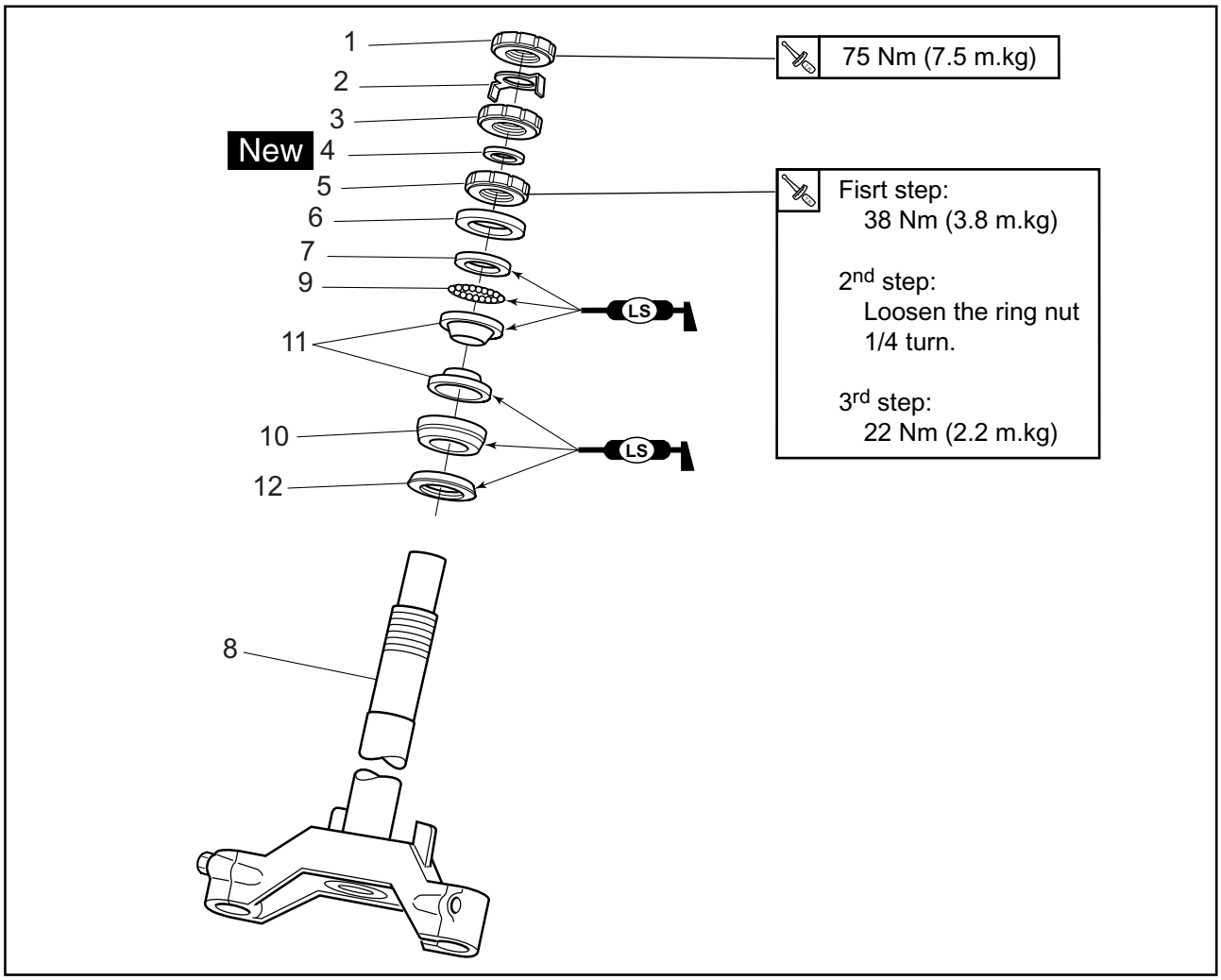
10. Install:
   • stop switches

11. Connect:
   • stop switches connectors
   • Handlebar switches connectors

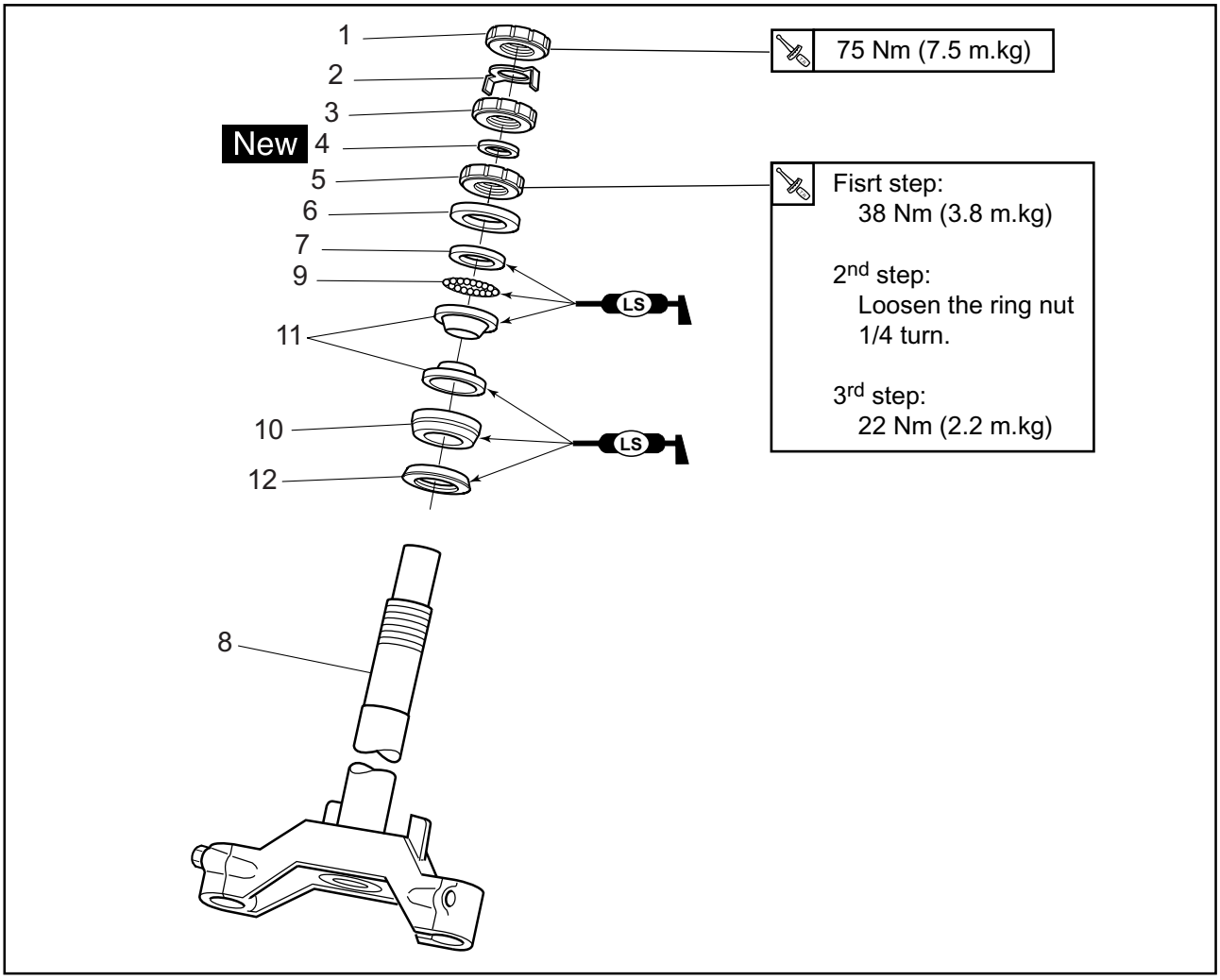
12. Fasten:
   • cables and wires
   Refer to "CABLE ROUTING" in chapter 2.

EAS00675

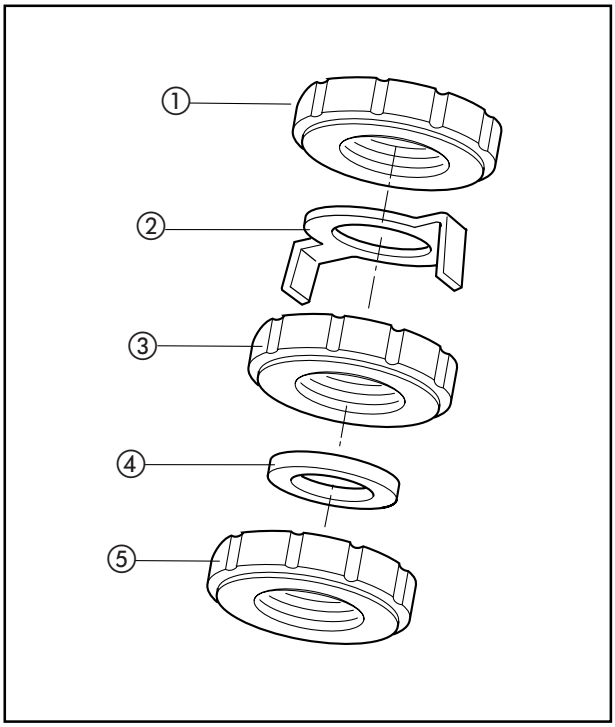
STEERING HEAD



Order	Job/Part	Q'ty	Remarks
	Removing the lower bracket		Remove the parts in the order listed.
			⚠ WARNING **Securely support the scooter so that there is no danger of it falling over.**
	Front fork		Refer to "FRONT FORK".
	Handlebar		Refer to "HANDLEBAR".
I	Remove:		
1	Ring nut (upper)	1	Refer to "REMOVING THE LOWER BRACKET".
2	Lock washer	1	
3	Ring nut (center)	1	
4	Rubber washer	1	
5	Ring nut (lower)	1	
6	Ball race cover	1	



Order	Job/Part	Q'ty	Remarks
7	Ball race (upper)	1	Refer to "REMOVING THE LOWER BRACKET".
8	Lower bracket	1	
9	Ball	22	
10	Bearing	1	
11	Ball race	2	
12	Ball race (lower)	1	
			For installation, reverse the removal procedure.



EAS00680
REMOVING THE LOWER BRACKET

1. Stand the scooter on a level surface.

⚠ WARNING

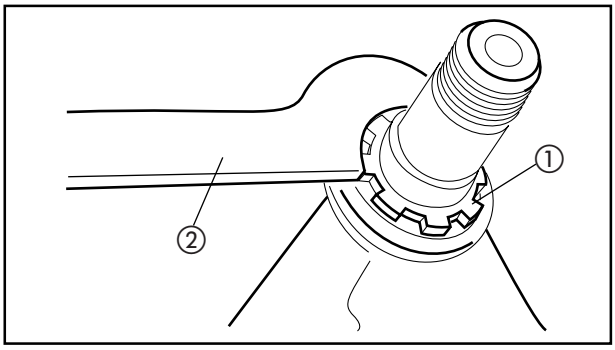
Securely support the scooter so that there is no danger of it falling over.

2. Remove:
   - upper ring nut ①
   - lock washer ②

3. Remove:
   - center ring nut ③
   - rubber washer ④
   - lower ring nut ⑤

NOTE:

Hold the lower ring nut ① with the steering nut wrench ②, and then remove the center ring nut with the ring nut wrench.



Ring nut wrench
90890-01268
Steering nut wrench
90890-01403

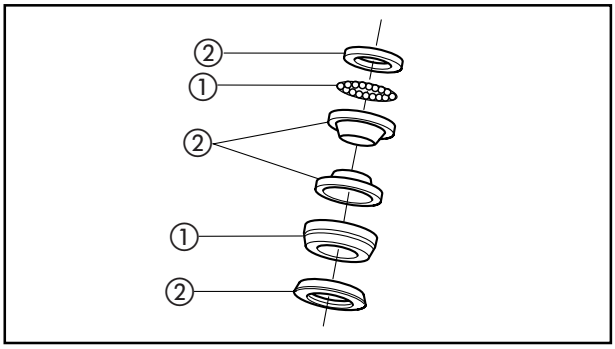
⚠ WARNING

Securely support the lower bracket so that there is no danger of it falling.

EAS00682
CHECKING THE STEYERING HEAD

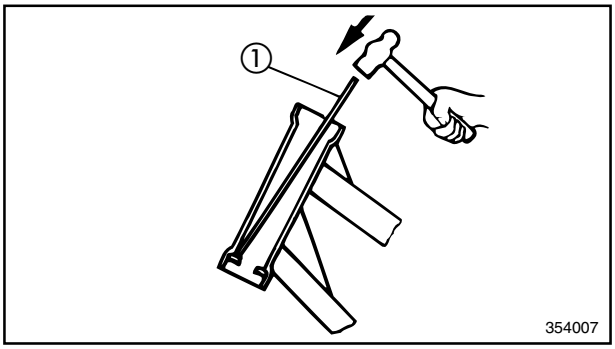
1. Wash:
   - bearing balls
   - bearing races

Recommended cleaning solvent
Kerosene



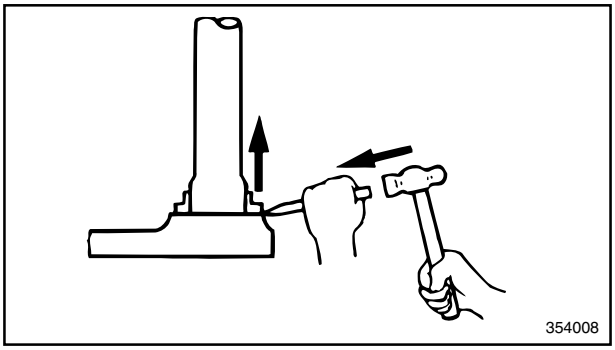
2. Check:
   - bearing balls ①
   - bearing races ②

Damage/pitting → Replace.



3. Replace:
   • bearing balls
   • bearing races

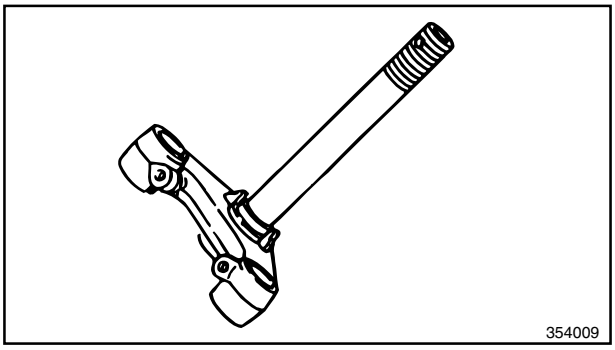
a. Remove the bearing races from the steering head pipe with a long rod ① and hammer.



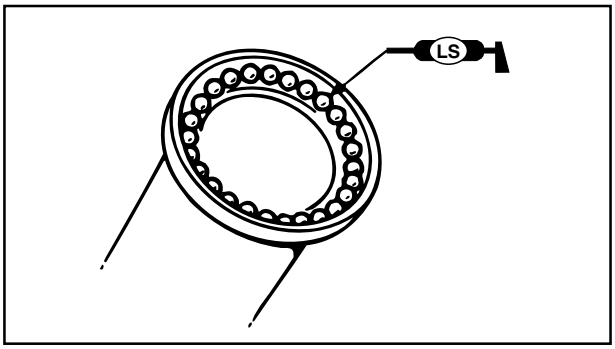
b. Remove the bearing race from the lower bracket with a floor chisel and hammer.
c. Install a new dust seal and new bearing races.

CAUTION:
If the bearing race is not installed properly, the steering head pipe could be damaged.

NOTE:
- Always replace the bearing balls and bearing races as a set.
- Whenever the steering head is disassembled, replace the dust seal.



4. Check:
   • lower bracket
   (along with the steering stem)
   Bends/cracks/damage → Replace.



EAS00684
INSTALLING THE STEERING HEAD

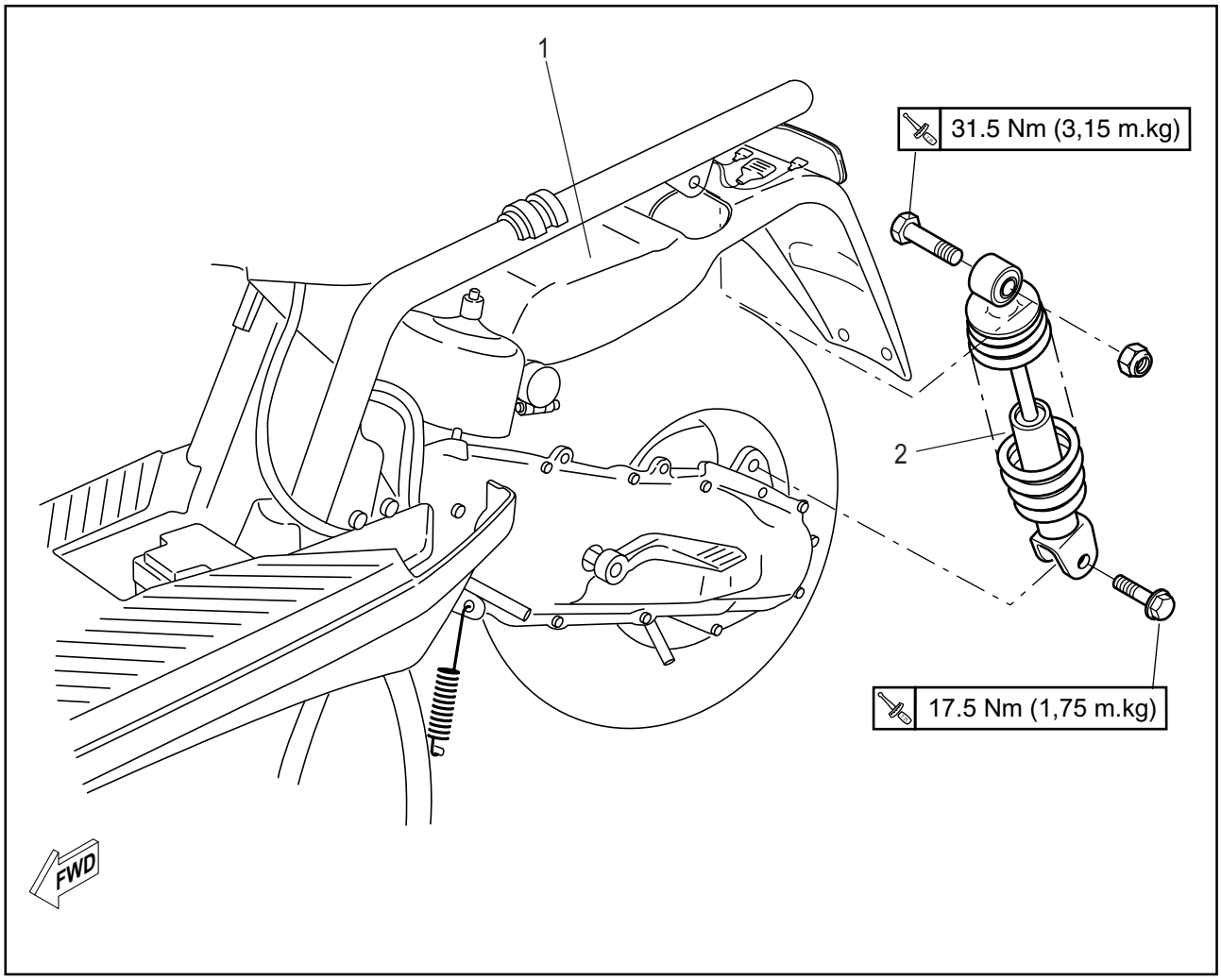
1. Lubricate:
   • upper bearing
   • lower bearing
   • bearing races

	Recommended lubricant **Lithium soap base grease**

2. Install:
   • lower ring nut
   • rubber washer
   • center ring nut
   • lock washer
   • upper ring nut
   Refer to “CHECKING AND ADJUSTING THE STEERING HEAD” in chapter 3.

EAS00685

REAR SHOCK ABSORBER ASSEMBLY



Order	Job/Part	Q'ty	Remarks
	Removing the rear shock absorber assembly		Remove the parts in the order listed.
	Rear covers		Refer to "COVERS" in chapter 3.
I	Remove:		
1	Rear under cover	1	
II	Remove:		
2	Rear shock absorber	1	
			For installation, reverse the removal procedure.

EAS00695
CHECKING THE REAR SHOCK ABSORBER ASSEMBLY

1. Check:
   • rear shock absorber rod
   Bends/damage → Replace the rear shock absorber assembly.

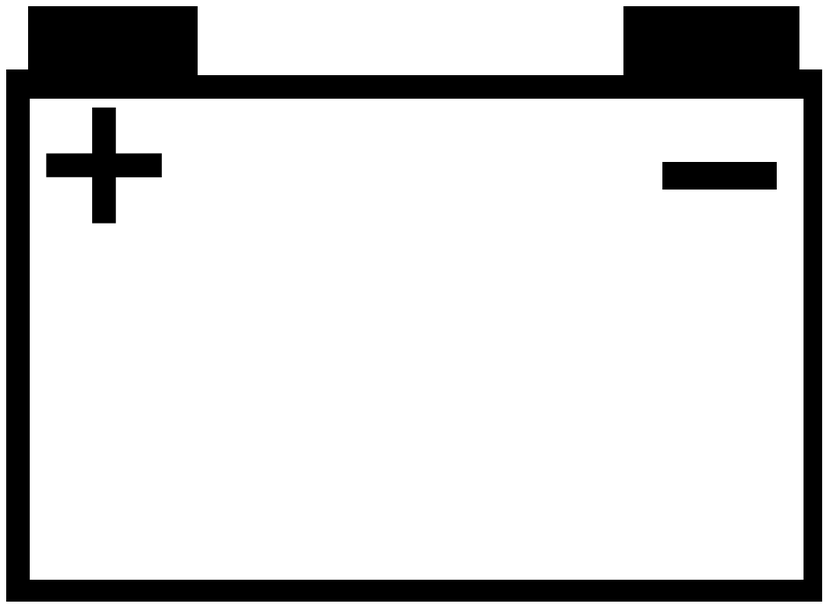
   • rear shock absorber
   Oil leaks → Replace the rear shock absorber assembly.

   • spring
   Damage/wear → Replace the rear shock absorber assembly.

   • bushings
   Damage/wear → Replace.

   • dust seals
   Damage/wear → Replace.

   • bolts
   Bends/damage/wear → Replace.



ELEC 7

CHAPTER 7.
ELECTRICAL

CIRCUIT DIAGRAM 7-1

ELECTRICAL COMPONENTS 7-3

SWITCH INSPECTION 7-5
SWITCH INSPECTION 7-5
SWITCH CONTINUITY INSPECTION 7-5

IGNITION AND STARTING SYSTEM 7-7
CIRCUIT DIAGRAM 7-7
TROUBLESHOOTING 7-8

STARTER MOTOR 7-14
INSPECTION 7-15

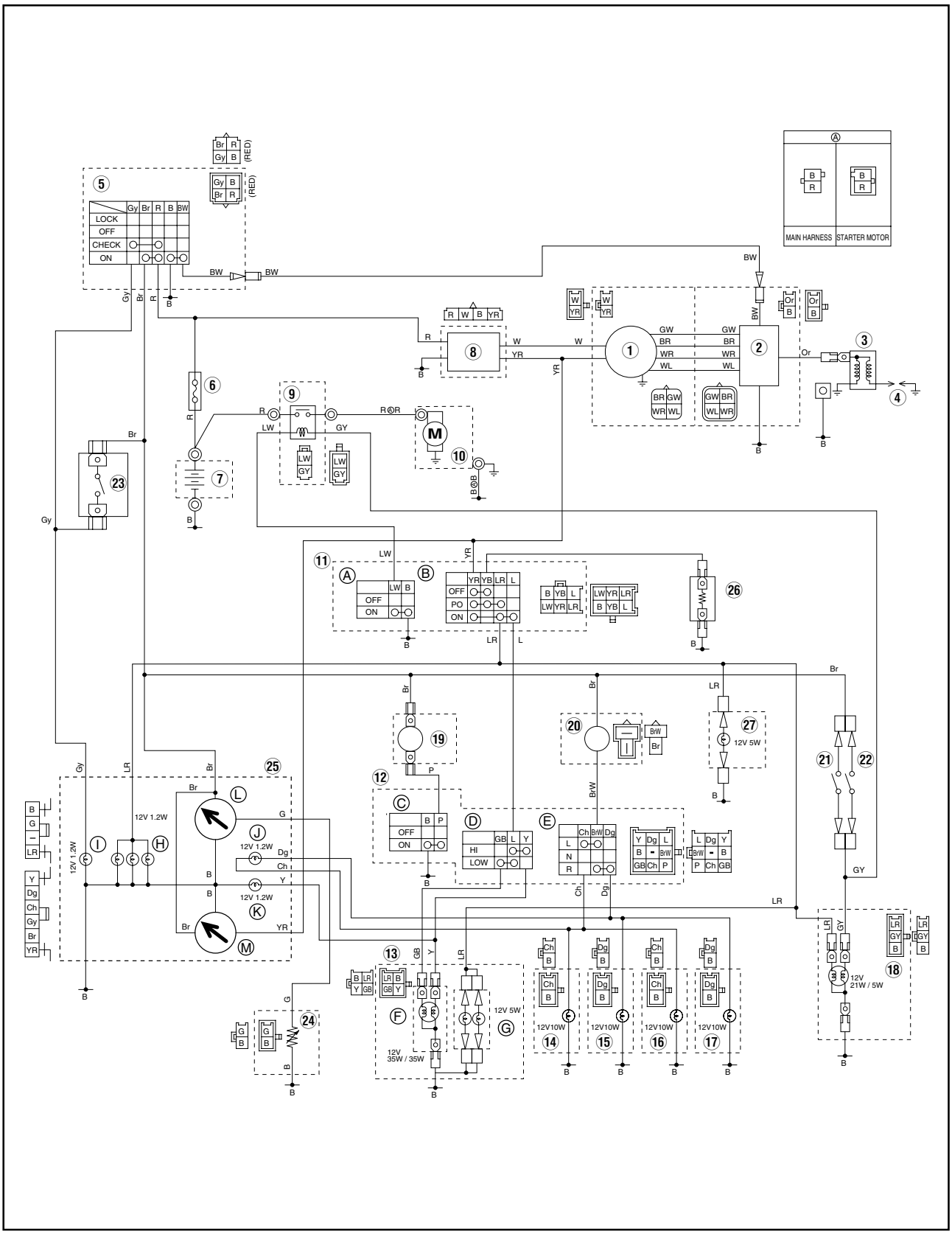
CHARGING SYSTEM 7-17
CIRCUIT DIAGRAM 7-17
TROUBLESHOOTING 7-18

LIGHTING SYSTEM 7-21
CIRCUIT DIAGRAM 7-21
TROUBLESHOOTING 7-22
LIGHTING SYSTEM CHECK 7-24

SIGNAL SYSTEM 7-28
CIRCUIT DIAGRAM 7-28
TROUBLESHOOTING 7-29
SIGNAL SYSTEM CHECK 7-31

ELECTRICAL

CIRCUIT DIAGRAM



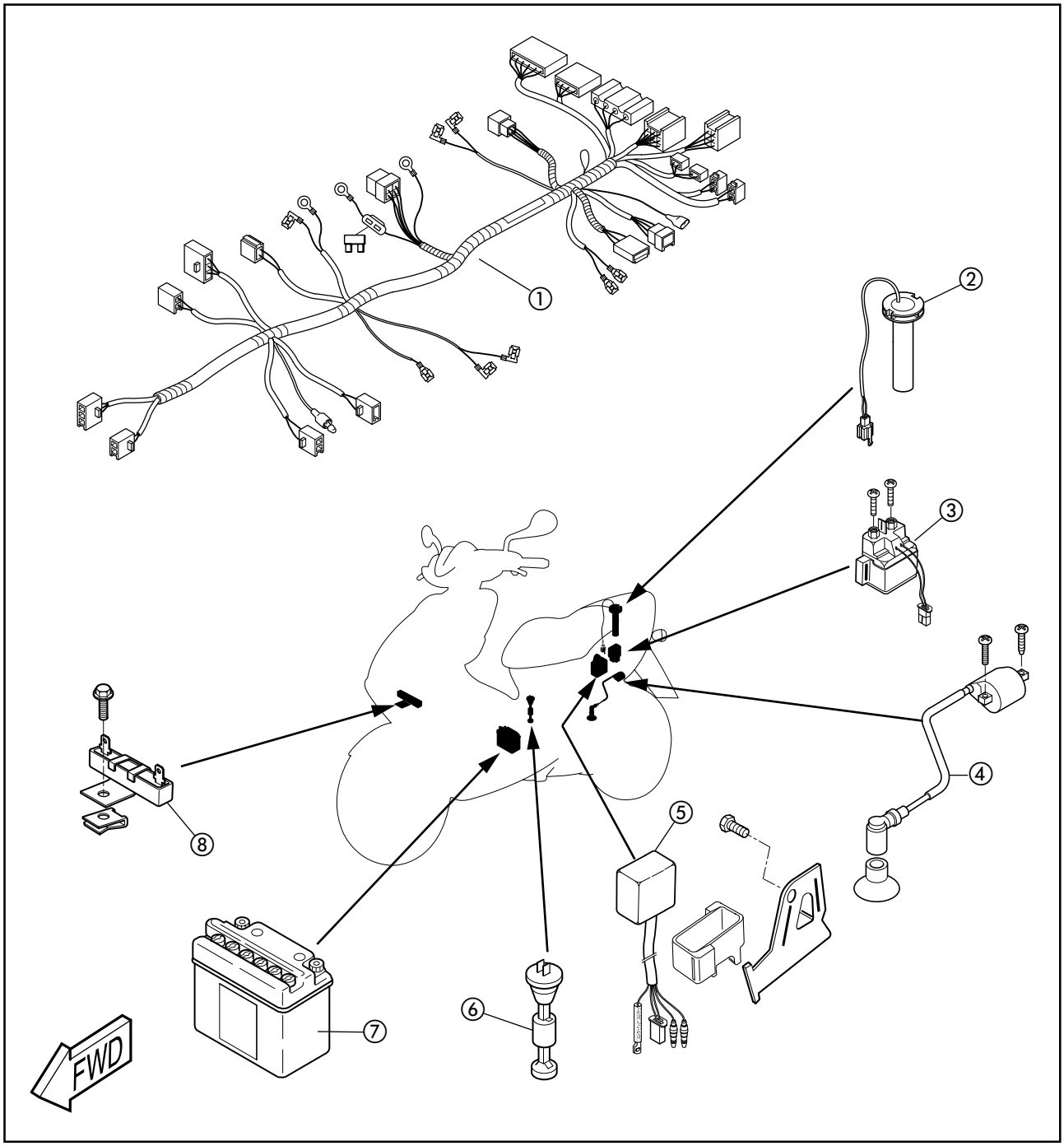
① CDI magneto
② CDI unit
③ Ignition coil
④ Spark plug
⑤ Main switch
⑥ Fuse
⑦ Battery
⑧ Rectifier/regulator
⑨ Starter relay
⑩ Starter motor
⑪ Right handle switch
  Ⓐ Starter switch
  Ⓑ Light switch
⑫ Left handle switch
  Ⓒ Horn switch
  Ⓓ "HI/LO" switch
  Ⓔ Flasher switch
⑬ Head light assy
  Ⓕ Head light
  Ⓖ Position light
⑭ Front flasher light (left)
⑮ Front flasher light (right)
⑯ Rear flasher light (left)
⑰ Rear flasher light (right)
⑱ Tail / "STOP" light
⑲ Horn
⑳ Flasher relay
㉑ Front brake switch
㉒ Rear brake switch
㉓ Oil level gauge
㉔ Fuel sender
㉕ Meter assembly
  Ⓗ Meter light
  Ⓘ Oil indicator light
  Ⓙ Flasher indicator light
  Ⓚ High beam indicator light
  Ⓛ Fuel meter
  Ⓜ Tachometer
㉖ Resistor
㉗ License light

COLOR CODE

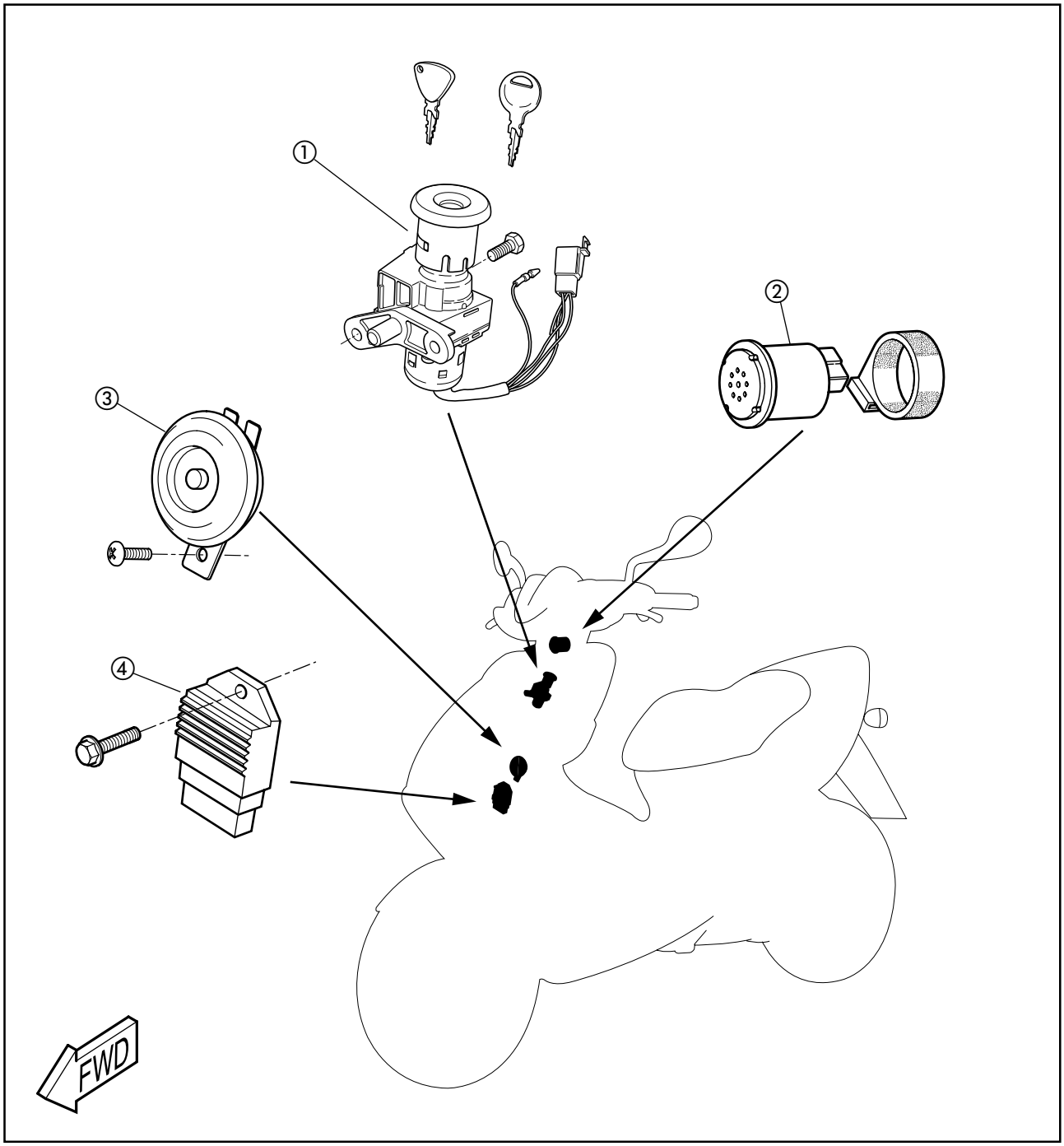
B	Black	B/R	Black/Red
Br	Brown	B/W	Black/White
Ch	Chocolate	Br/W	Brown/White
Dg	Dark green	G/B	Green/Black
G	Green	G/W	Green/White
Gy	Grey	G/Y	Green/Yellow
L	Blue	L/R	Blue/Red
Or	Orange	L/W	Blue/White
P	Pink	W/L	White/Blue
R	Red	W/R	White/Red
W	White	Y/B	Yellow/Black
Y	Yellow	Y/R	Yellow/Red

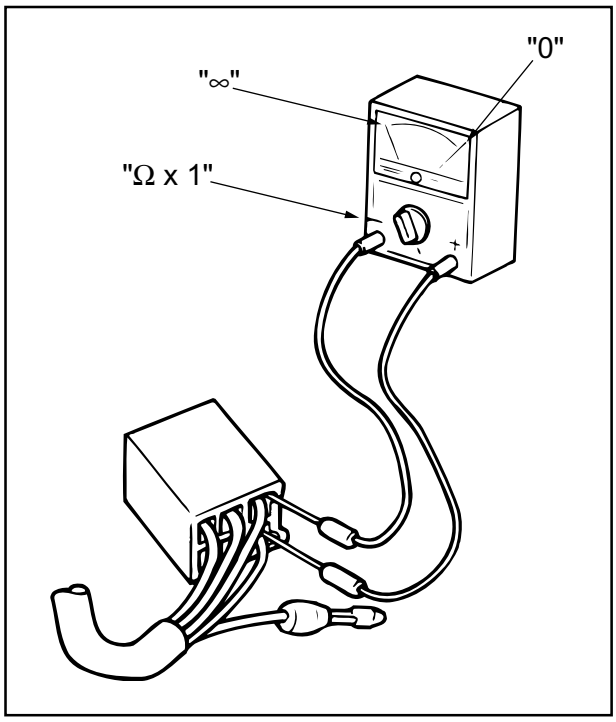
ELECTRICAL COMPONENTS

① Wire harness
② Fuel sender
③ Starter relay
④ Ignition coil
⑤ CDI unit
⑥ Oil sender
⑦ Battery
⑧ Resistance



① Main switch
② Flasher relay
③ Horn
④ Rectifier/Regulator





SWITCH INSPECTION

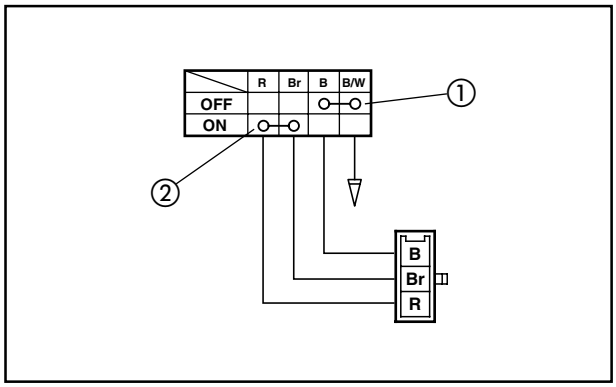
SWITCH INSPECTION

Use a pocket tester to check the terminals for continuity. If the continuity is faulty as any point, replace the switch.

Pocket tester:
90890-03112

NOTE:

- Set the pocket tester to "O" before starting the test.
- The pocket tester should be set to the "x1" Ω range when testing the switch for continuity.
- Turn the switch on and off a few times when checking it.



SWITCH CONTINUITY INSPECTION.

The terminal connections for switches (main switch, handlebar switch, engine stop switch, light switch,etc.) are shown in a chart similar to the one on the left.

This chart shows the switch positions in the column and the switch lead colors in the top row. For each switch position, " ○–○ " indicates the terminals with continuity.

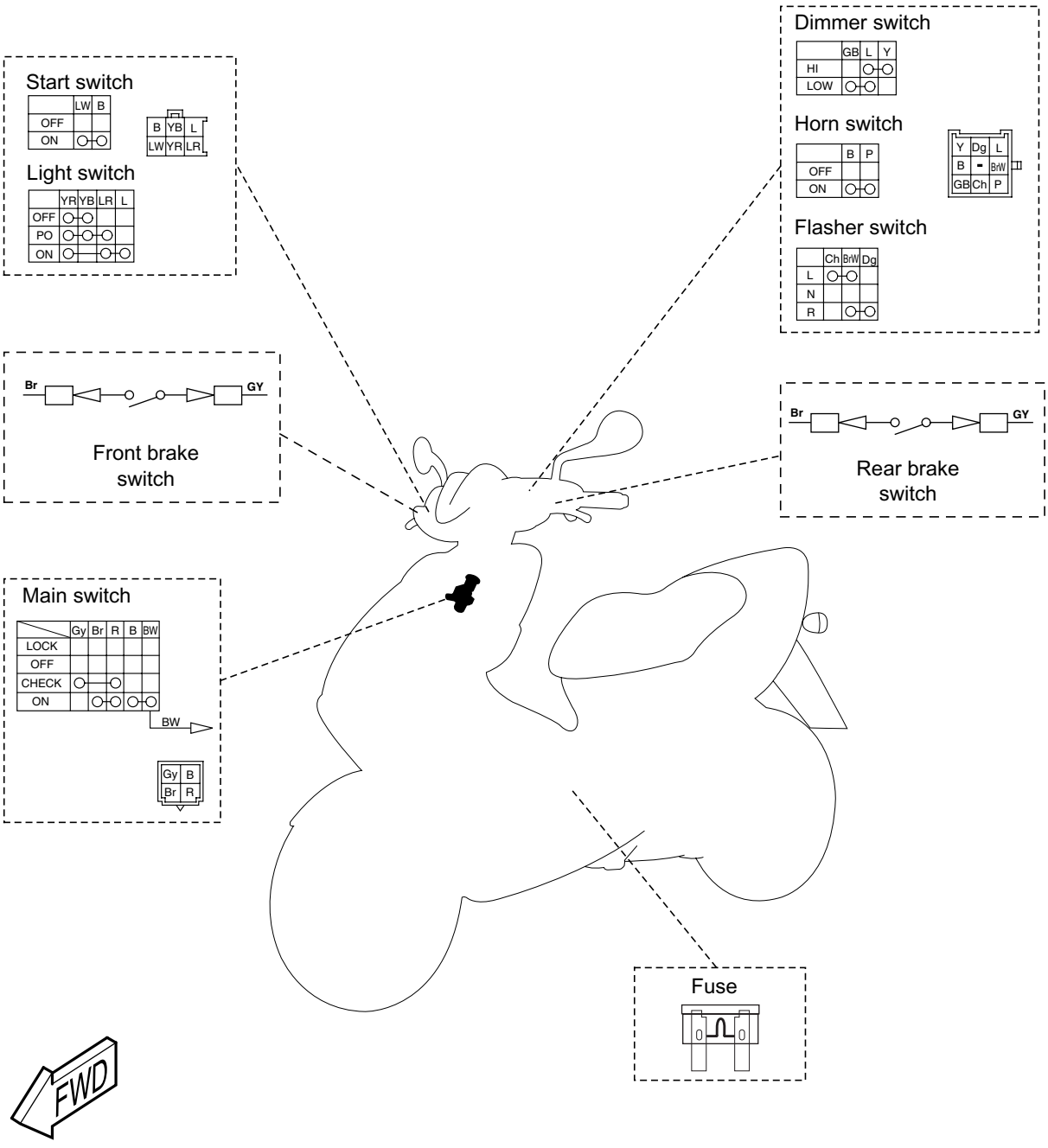
The example chart shows that:

① There is continuity between the "Black" and "Black/White" leads when the switch is set to "OFF".

② There is continuity between the "Red" and "Brown" leads when the switch is set to "ON".

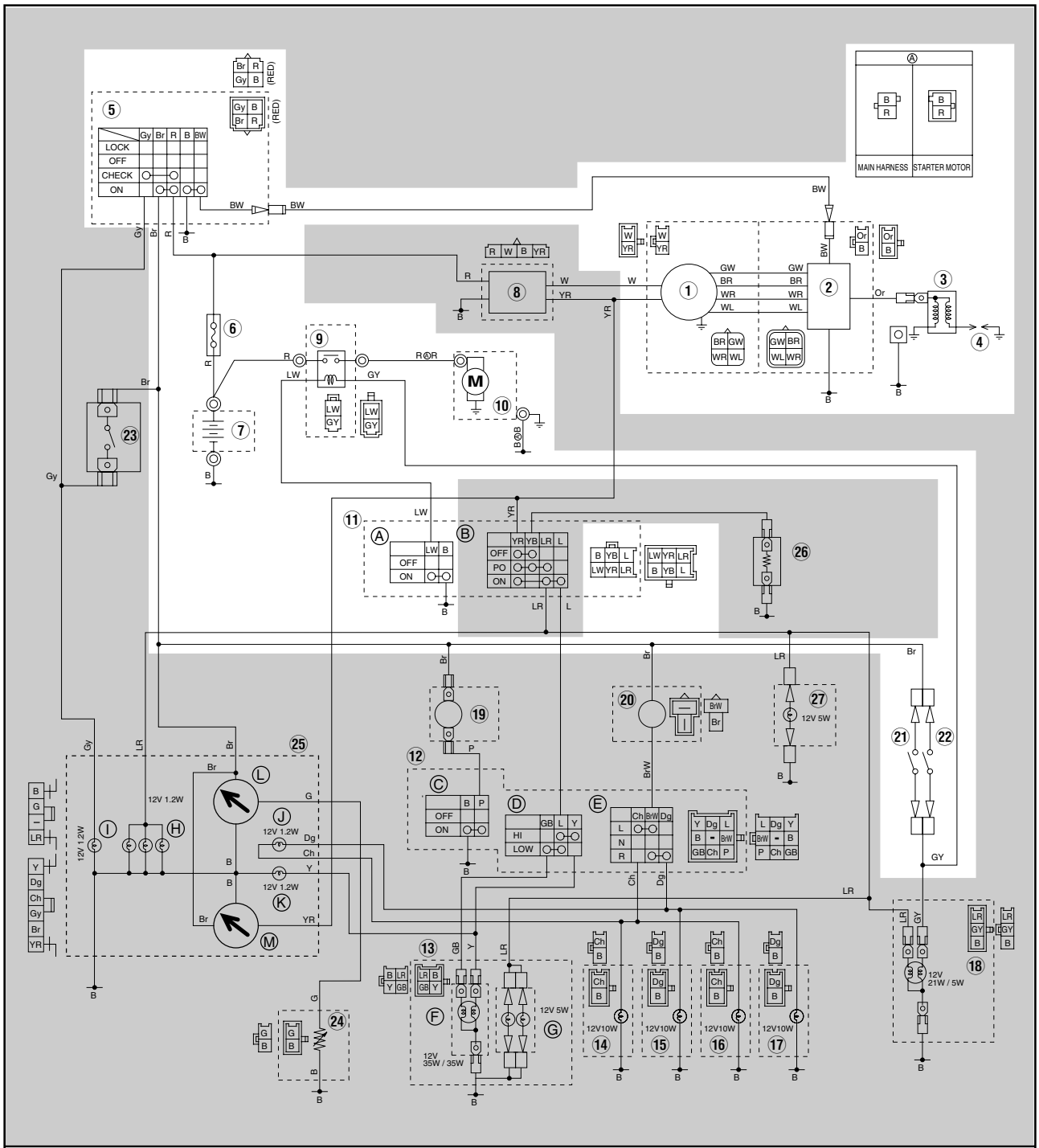
SWITCH CONTINUITY INSPECTION

Before checking a switch refer to the checking switches as shown in the page 7-5 and check for the correct terminal connections (closed circuit) according to color combinations shown in the chart.
Poor connection, fault → Repair or replace.



IGNITION AND STARTING SYSTEM

CIRCUIT DIAGRAM



① CDI magneto
② CDI unit
③ Ignition coil
④ Spark plug
⑤ Main switch
⑥ Fuse
⑦ Battery
⑨ Starter relay
⑩ Starter motor
⑪ Handle switch (right)
Ⓐ Starter switch
㉑ Front brake switch
㉒ Rear brake switch

TROUBLESHOOTING

THE STARTING SYSTEM DOES NOT WORK (NO SPARK OR IRREGULAR SPARKS)

Procedure:

Check:

1. Fuse (main)
2. Battery
3. Spark plug
4. Spark check
5. Spark plug cap resistance
6. Ignition coil resistance
7. Pickup coil resistance
8. Source coil resistance
9. Main switch
10. Connections

NOTE:

Remove the following parts before proceeding with the troubleshooting:

1) Battery cover
2) Side covers (right and left)

For accurate troubleshooting use the following special tools:

Ignition tester:
90890-06754
Pocket tester:
90890-03112

1. Fuse

Refer to "SWITCH INSPECTION" section.

NO CONTINUITY → Replace the fuse.

CONTINUITY ↓

2. Battery

- Check the condition of the battery. Refer to "CHECKING THE BATTERY" in chapter 3.

DOES NOT MEET SPECIFICATION →
- Clean battery terminals.
- Charge or replace the battery.

CONTINUITY ↓

3. Spark plug

- Check the spark plug type.
- Check the condition of the spark plug.
- Check the spark plug gap. Refer to "CHECKING THE SPARK PLUG" in chapter 3.

Spark plug standard:
BR8HS/NGK

Spark plug gap:
0.5 ~ 0.7 mm

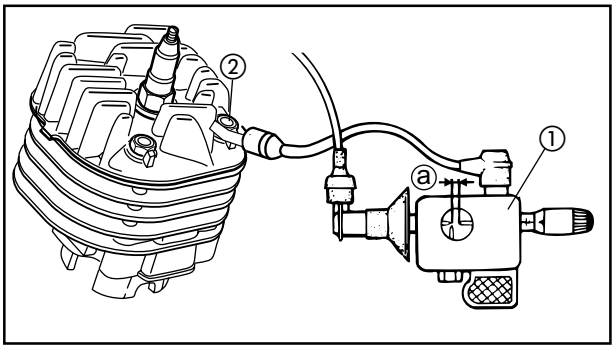
DOES NOT MEET SPECIFICATION →
Adjust it or replace the spark plug.

↓

4. Spark check

- Remove the spark plug cap.
- Connect the ignition checker ①
  ② Ground
  ⓐ Spark plug gap
- Turn the main switch to "ON".
- Start the engine.
- Check the length of the spark gap.
- Increase the spark length until the engine begins to misfire.

Minimum spark gap:
6 mm



MEETS SPECIFICATION

Ignition system in good condition.

OUT OF SPECIFICATION OR NO SPARK

5. Spark plug cap resistance

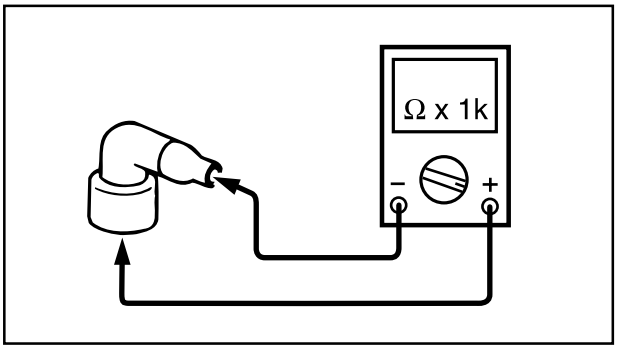
- Disconnect the spark plug cap.
- Connect the pocket tester (Ωx1k) to the ignition coil.
- Check the resistance of the spark plug cap.

Spark plug cap resistance:
5kΩ (20°C)

DOES NOT MEET SPECIFICATION

Replace the spark plug cap.

CORRECT



6. Ignition coil resistance

- Disconnect the ignition coil leads.
- Connect the pocket tester (Ωx1) to the ignition coil.

Pocket tester (+) lead → Orange
Pocket tester (-) lead → Black

- Check the primary coil resistance.

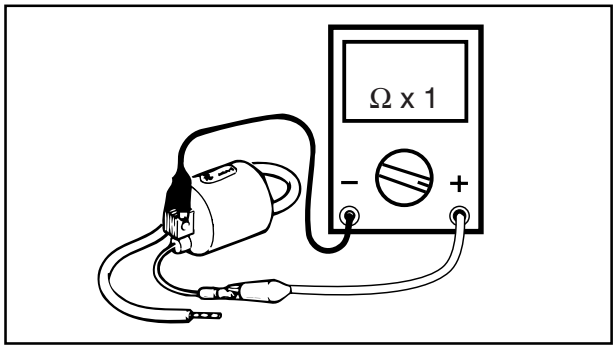
Primary coil resistance:
0.32 ~ 0.48 Ω (20°C)

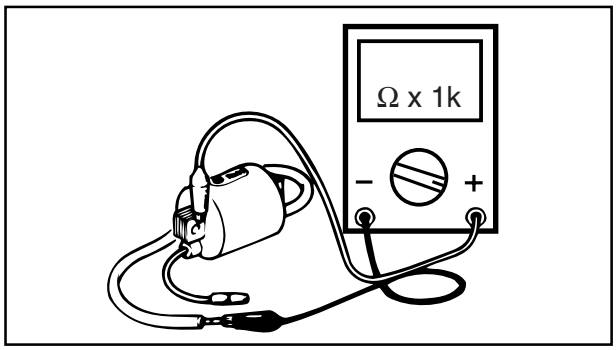
- Connect the pocket tester (Ωx1k) to the ignition coil.

Pocket tester (+) lead → Ground
Pocket tester (-) lead → Spark plug lead

- Check the secondary coil resistance.

Secondary coil resistance:
5,68 ~ 8,52 kΩ (20°C)





DOES NOT MEET SPECIFICATION

Defect. Replace the ignition coil.

MEETS SPECIFICATION

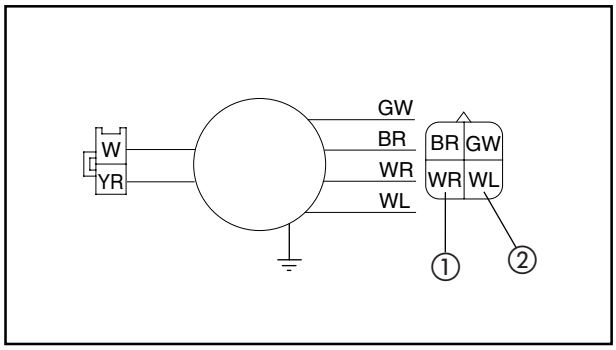
7. Pickup coil resistance

- Disconnect the pickup coil coupler.
- Connect the pocket tester (Ωx100) to the pickup coil.

Pocket tester (+) lead → White/Red ①
Pocket tester (-) lead → White/Blue ②

- Check the pickup coil resistance.

Pickup coil resistance:
400 ~ 600 Ω at 20°C



DOES NOT MEET SPECIFICATION

Replace the pickup coil.

MEETS SPECIFICATION

MEETS SPECIFICATION

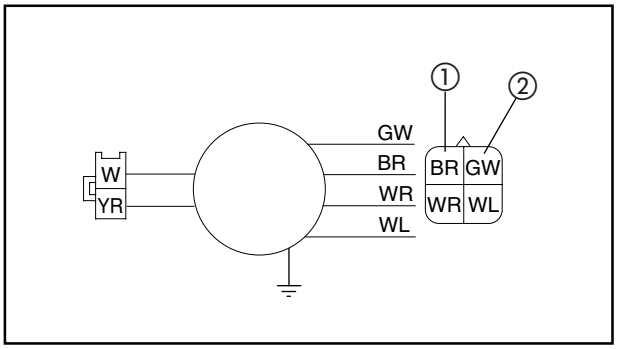
8. Source coil resistance

- Disconnect the source coil coupler from the wire harness.
- Connect the pocket tester (Ωx100) to the source coil.

Pocket tester (+) lead → Black/Red ①
Pocket tester (-) lead → Green/white ②

- Check the source coil resistance.

Source coil resistance:
640 ~ 960 Ω at 20°C



Replace the source coil.

MEETS SPECIFICATION

9. Main switch

Refer to "SWITCH INSPECTION" section.

NO CONTINUITY

Replace the main switch.

CONTINUITY

10. Connections

- Check all connections in the ignition system.
  Refer to "WIRING DIAGRAM".

POOR CONNECTIONS

Repair

GOOD CONNECTIONS

Replace the CDI unit.

TROUBLESHOOTING

STARTER MOTOR DOES NOT WORK

Procedure

Check:
1. Fuse (main)
2. Battery
3. Starter motor
4. Starter relay
5. Main switch
6. Starter motor switch
7. Connections

NOTE:
- Remove the following parts before proceeding with the troubleshooting:
  1) Side covers (right and left)
  2) Footrest board/Leg shields
- For accurate troubleshooting use the following special tools:

Pocket tester:
90890-03112

1. Fuse.

Refer to "SWITCH INSPECTION" section.

NO CONTINUITY → Replace the fuse.

CONTINUITY ↓

2. Battery

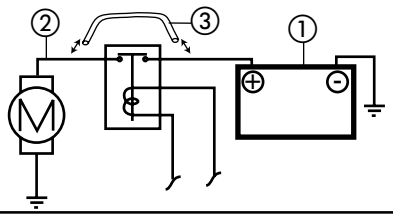
- Check the condition of the battery. Refer to "CHECKING THE BATTERY" in the Chapter 3.

DOES NOT MEET SPECIFICATION → • Clean battery terminals. • Charge or replace the battery.

MEETS SPECIFICATIONS ↓

3. Starter motor

- Use a jumper lead ③ to connect the (+) ① terminal of the battery to the starter motor terminal ②.



CAUTION:
- **If the gauge of the jumper lead is smaller than that of the battery leads, the jumper lead might melt or burn.**
- **This test could cause sparks. Never perform it near a gas source or near flammable products.**

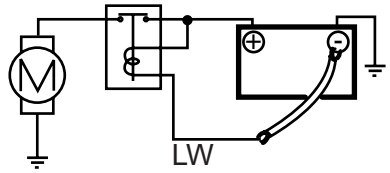
• Check the starter motor operation

WORKS ⇩

DOES NOT WORK → Starter defect → Repair or replace

4.Starter relay

• Disconnect Blue/White lead from the wire harness.
• Connect the (-) terminal of the battery to the Blue/White lead.
• Check the starter motor operation.



DOES NOT WORK → Replace the starter relay.

WORK ⇩

5.Main switch.

Refer to "SWITCH INSPECTION" section.

MEETS SPECIFICATION ⇩

DOES NOT MEET SPECIFICATION → Replace the main switch.

6.Starter motor switch.

Refer to "SWITCH INSPECTION" section.

MEETS SPECIFICATION ⇩

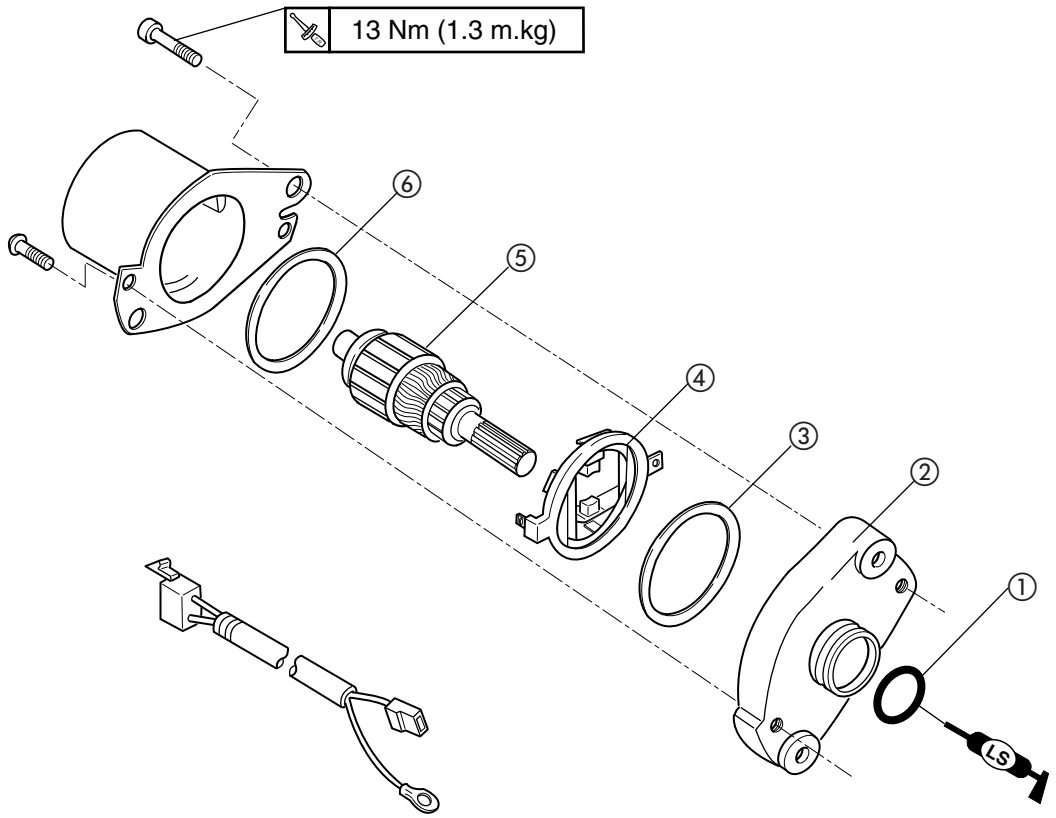
DOES NOT MEET SPECIFICATION → Replace the right handlebar switch.

7.Connections.

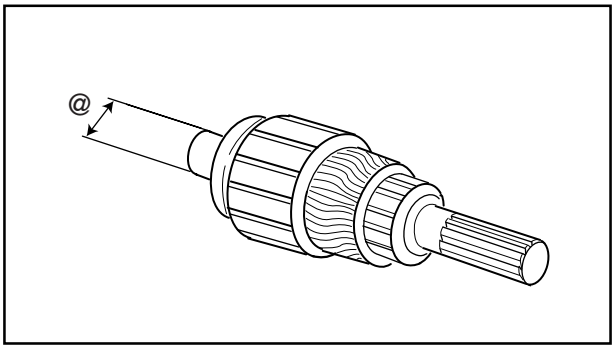
• Check all connections in the starter system. Refer to "WIRING DIAGRAM" section.

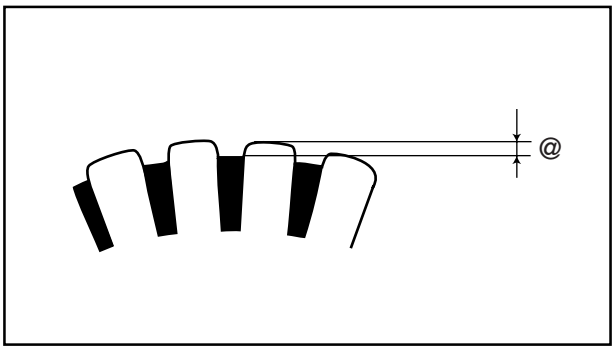
POOR CONNECTIONS → Repair.

STARTER MOTOR



Order	Job name/Part name	Q'ty	Remarks
	Starter motor removal		Refer to "STARTER CLUTCH AND GENERATOR" in Chapter 4.
	Stater motor disassembly		Disassemble the parts in the order below
①	O-ring	1	
②	Front bracket	1	
③	Rubber seal	1	
④	Brush holder assembly	1	
⑤	Armature	1	
⑥	Rubber seal	1	
			For the assembly, reverse the disassembling procedure.





INSPECTION

1. Check:
   • Commutator

Dirty → Clean it with #600 grit sandpaper.

2. Measure:
   • Commutator diameter @

Out of specification → Replace starter motor

Commutator wear limit:
14.8 mm

3. Measure:
   • Mica undercut @

   Out of specification → Scrape the mica to proper value using a hacksaw blade can be ground to fit.

Mica undercut @:
1.15 mm

N.B.:

The mica insulation of the commutator must be undercut to ensure proper operation of commutator.

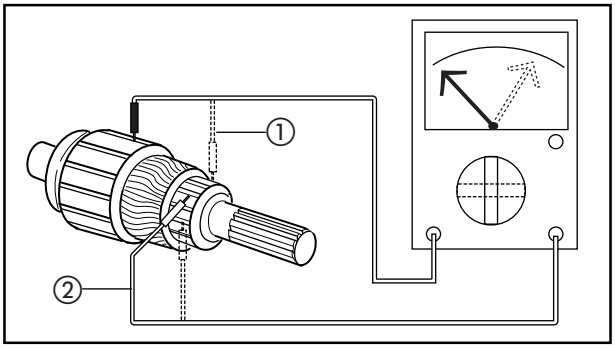
4. Inspect:
   • Armature coil (insulation/continuity)

   Defects → Replace starter motor.

****

Inspecting steps:

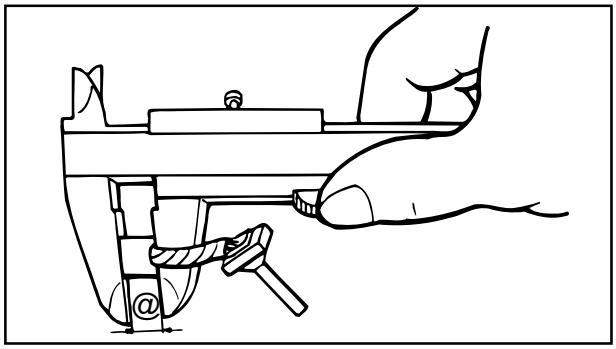
- Connect the pocket tester for continuity check ① and insulation check ②.
- Measure the armature resistances.



Armature coil resistance:
Continuity check ①:
0.06 ~ 0.08 Ω at 20°C
Insulation check ②:
More than 1 MΩ

- If the resistance is incorrect, replace the starter motor.

****



5. Measure:
   • Brush length @
   Out of specification → Replace.

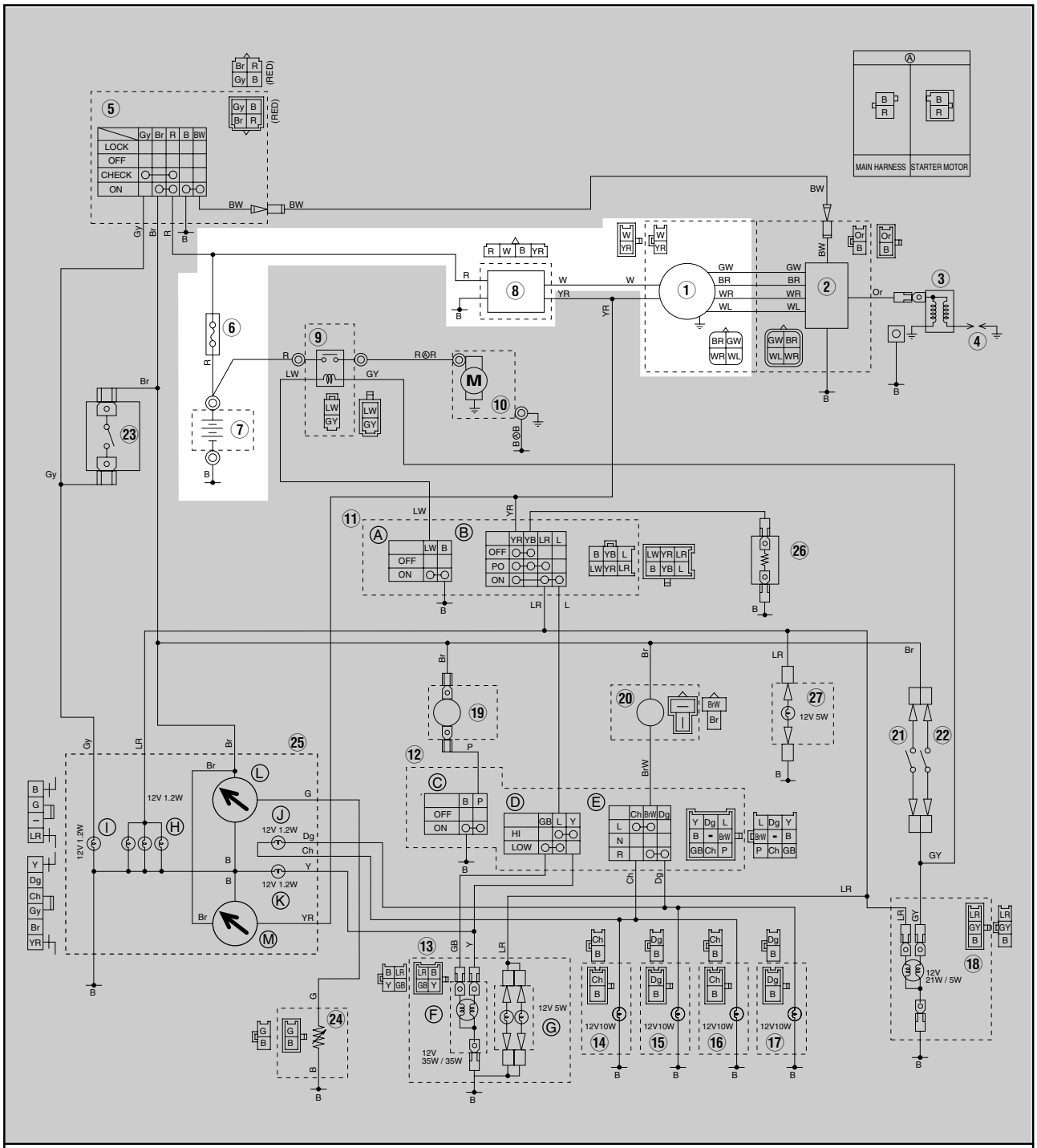
Brush length limit @:
0.9 mm

6. Measure:
   • Brush spring force
   Fatigue/Out of specification → Replace as a set.

Brush spring force:
563 ~ 844 g

CHARGING SYSTEM

CIRCUIT DIAGRAM



① CDI magneto
⑥ Fuse
⑦ Battery
⑧ Rectifier/Regulator

TROUBLESHOOTING

THE BATTERY IS NOT CHARGED

Procedure
Check:
1. Fuse (main)
2. Battery
3. Charging voltage
4. Charging coil resistance
5. Connections

NOTE:
- Remove the following parts before proceeding with the troubleshooting:
  1) Battery cover
  2) Side covers (right and left)
  - For accurate troubleshooting special tools:

Inductive tachometer:
90890-03113
Pocket tester:
90890-03112

1. Fuse.
   Refer to "SWITCH INSPECTION" section.

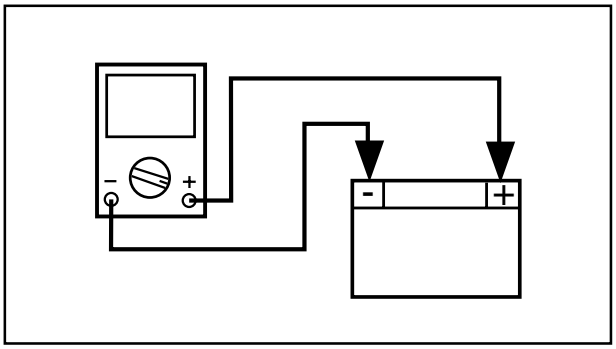
NO CONTINUITY → Replace the fuse.

CONTINUITY ⇩

2. Battery
   - Check the condition of the battery. Refer to "CHECKING THE BATTERY" in the Chapter 3.

DOES NOT MEET SPECIFICATION →
- Clean battery terminals.
- Charge or replace the battery.

MEETS SPECIFICATION ⇩



3. Charging voltage

- Connect the engine tachometer to the spark plug lead.
- Connect the pocket tester (DC20V) to the battery terminals.

Pocket tester (+) lead →
Battery (+) terminals
Pocket tester (-) lead →
Battery (-) terminals

- Start the engine and accelerate to about 5.000 rpm.
- Check the charging voltage.

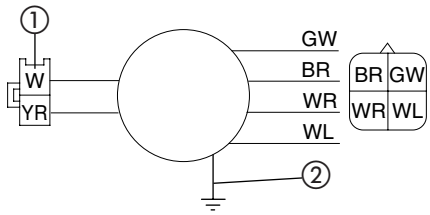
Charging voltage:
14 ~ 15V at 5.000 r/min

NOTE:
Use a fully charged battery.

MEETS SPECIFICATION

Charging circuit is OK.

OUT OF SPECIFICATION



4. Charging coil resistance

- Disconnect the CDI magneto coupler from the wire harness.
- Connect the pocket tester (Ω x 1) to the charging coil.

Pocket tester (+) lead → White ①
Pocket tester (-) lead → Ground ②

• Check the charging coil resistance.

Charging coil resistance:
0.48 ~ 0.72 Ω at 20°C

OUT OF SPECIFICATION → Charging coil defect → Replace.

MEETS SPECIFICATION ⇩

5. Connections

- Check all connections in the charging system.
  Refer to "WIRING DIAGRAM".

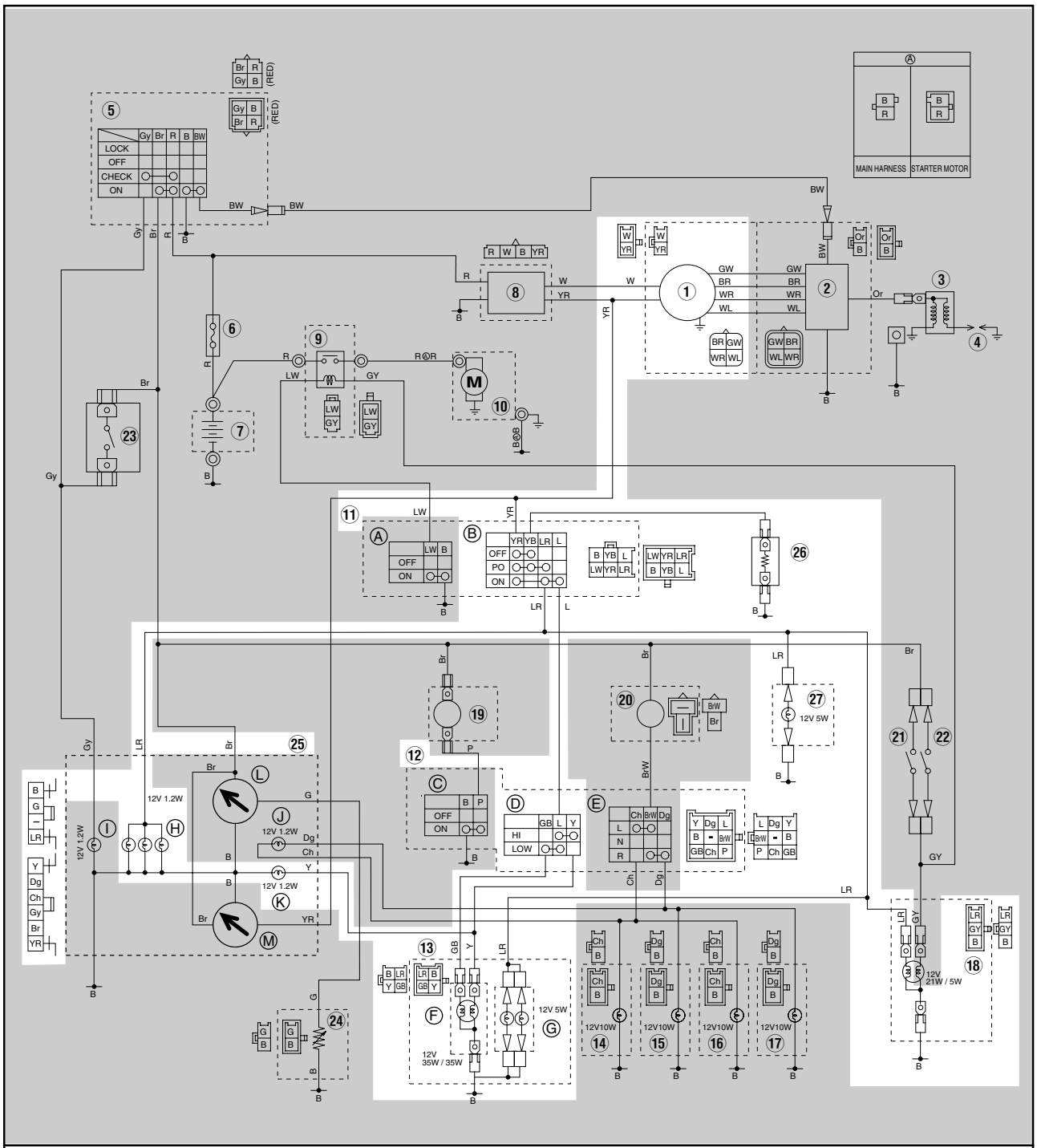
POOR CONNECTIONS → Repair.

MEETS SPECIFICATION ⇩

Replace the rectifier/regulator.

LIGHTING SYSTEM

CIRCUIT DIAGRAM



① CDI magneto
⑪ Right handle switch
Ⓑ Lighting switch
⑫ Left handle switch
Ⓓ "HI/LO" switch
⑬ Head light assy
Ⓕ Head light
Ⓖ Position light
㉕ Meter assembly
Ⓗ Meter light
Ⓚ High beam indicator light
⑱ Taillight
㉖ Resistor
㉗ License light

TROUBLESHOOTING

THE HEADLIGHT, HEADLIGHT INDICATOR, POSITION LIGHT, METER LIGHT, LICENSE LIGHT AND/OR TAILLIGHT DO NOT WORK

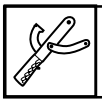
Procedure

Check:

1. "LIGHTS" switch
2. Lighting coil resistance
3. "HI/LO" switch
4. Connections

NOTE:

- Remove the following parts before proceeding with the troubleshooting:
  1) Side covers
  2) Handlebar covers
  3) Front panel
- For accurate troubleshooting use the following special tools.



Pocket tester:
90890-03112

YP802018

1. "LIGHTS" switch

Refer to "SWITCH INSPECTION" section.

NO CONTINUITY → Replace the right handlebar switch.

CONTINUITY ⇩

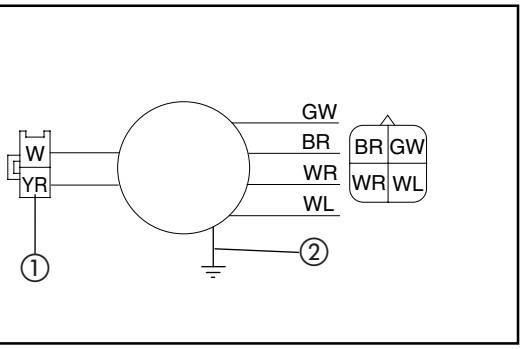
2. Lighting coil resistance

- Disconnect the lighting coil coupler from the wire harness.
- Connect the pocket tester (Ω x 0,1) to the lighting coil.

Pocket tester (+) lead → Yellow/Red ①
Pocket tester (-) lead → Ground ②

- Check the lighting coil resistance.

Lighting coil resistance:
0.40 ~ 0.60 Ω at 20°C



OUT OF SPECIFICATION → Lighting coil defect → Replace.

MEETS SPECIFICATION ⇩

3. "HI/LO" switch

Refer to "SWITCH INSPECTION".

NO CONTINUITY → Replace the "HI/LO" switch .

CONTINUITY ⇩

4. Connections

- Check all connections in the lighting system.

Refer to "WIRING DIAGRAM"

POOR CONNECTIONS → Repair.

CORRECT ⇩

Circuit is in good condition.

LIGHTING SYSTEM CHECK

1. Headlight and high beam indicator light do not work.

1. Bulb and socket.

Refer to "SWITCH INSPECTION".

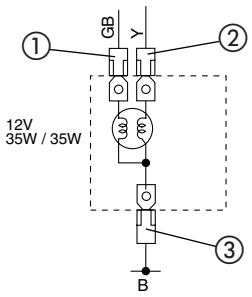
NO CONTINUITY → Replace the bulb or socket.

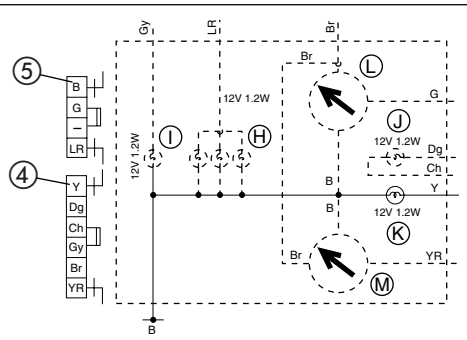
CONTINUITY ⇩

2. Voltage

- Connect the pocket tester (AC20V) to the headlight and the high beam indicator light couplers.

Headlight:
- **"LO":**
  Pocket tester (+) lead → Green/Black ①
  Pocket tester (-) lead → Black ③
- **"HI":**
  Pocket tester (+) lead → Yellow ②
  Pocket tester (-) lead → Black ③
- **High beam indicator light:**
  Pocket tester (+) lead → Yellow ④
  Pocket tester (-) lead → Black ⑤





- Set the main switch to "ON".
- Start the engine.
- Set the light switch to " ☼ ".
- Switch from "≡D" to "≡D" and back.
- Check for voltage (12 V) to the bulb socket connector.

OUT OF SPECIFICATION → There is a defect in the wire harness between the main switch and the bulb socket connector → Repair.

MEETS SPECIFICATION ⇩

Circuit is in good condition.

3. The front position light does not work.

1. Bulb and socket.

Refer to " SWITCH INSPECTION " section.

NO CONTINUITY → Replace bulb or socket.

CONTINUITY ⇩

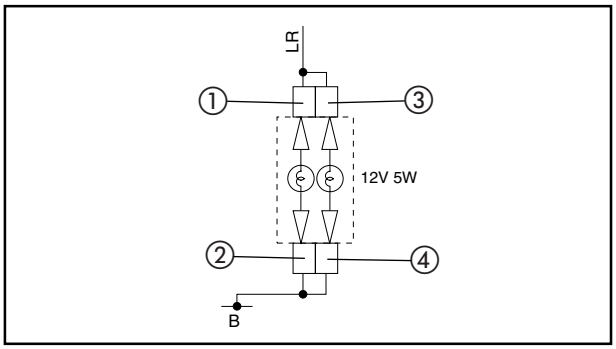
2. Voltage

- Connect the pocket tester (AC 20 V) to the front position light connectors.

Pocket tester (+) lead → Blue/Red ①
Pocket tester (-) lead → Black ②

Pocket tester (+) lead → Blue/Red ③
Pocket tester (-) lead → Black ④

- Set the main switch to "ON".
- Start the engine.
- Set the light switch to "≡D◁≡" or " ☼ ".
- Check for voltage (12 V) to the front position light terminals.



OUT OF SPECIFICATION → There is a defect in the wire harness between the main switch and the bulb socket connector → Repair.

MEETS SPECIFICATION → Circuit is in good condition.

3. The meter light does not work.

1. Bulb and socket.

Refer to " SWITCH INSPECTION " section.

NO CONTINUITY → Replace bulb or socket.

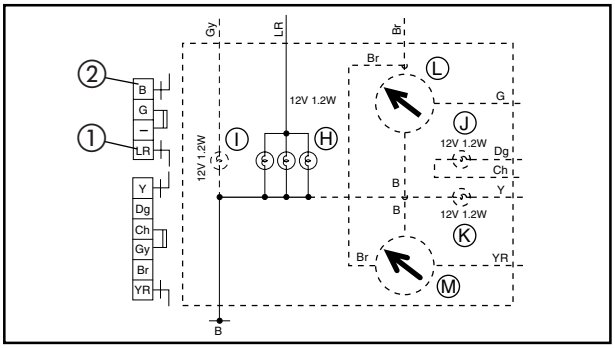
CONTINUITY

2. Voltage

- Connect the pocket tester (AC 20 V) to the meter light coupler.

Pocket tester (+) lead → Blue/Red ①
Pocket tester (-) lead → Black ②

- Set the main switch to "ON".
- Start the engine.
- Set the light switch to "≡D◁≡" or " ☼ ".
- Check for voltage (12 V) to the meter light coupler.



OUT OF SPECIFICATION → There is a defect in the wire harness between the main switch and the meter light coupler → Repair.

MEETS SPECIFICATION → Circuit is in good condition.

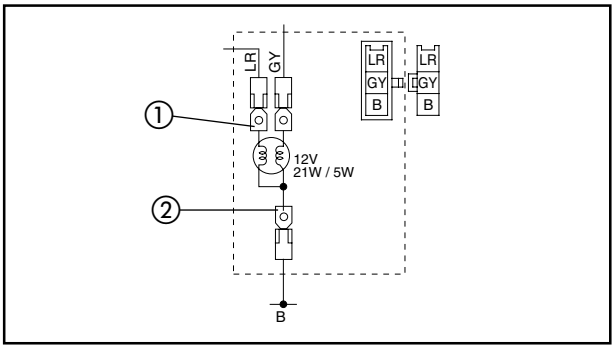
4. The taillight does not work.

1. Bulb and socket.
Refer to " SWITCH INSPECTION " section.

NO CONTINUITY → Replace bulb or socket.

CONTINUITY ⇩

2. Voltage
• Connect the pocket tester (AC 20 V) to the taillight connectors.
Pocket tester (+) lead → Blue/Red ① **Pocket tester (-) lead → Black ②**
• Set the main switch to "ON". • Start the engine. • Set the light switch to "≡D◁≡" or " ☼ ". • Check for voltage (12 V) to the taillight coupler.



OUT OF SPECIFICATION → There is a defect in the wire harness between the main switch and the taillight connectors → Repair.

MEETS SPECIFICATION ⇩

Circuit is in good condition.

4. The license light does not work.

1. Bulb and socket.
Refer to " SWITCH INSPECTION " section.

NO CONTINUITY → Replace bulb or socket.

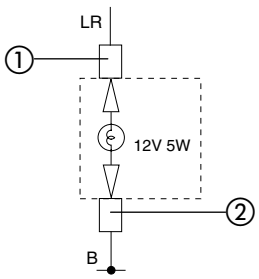
CONTINUITY ⇩

2. Voltage

- Connect the pocket tester (AC 20 V) to the license light coupler.

Pocket tester (+) lead → Blue/Red ①
Pocket tester (-) lead → Black ②

- Set the main switch to "ON".
- Start the engine.
- Set the light switch to "≡D◁≡" or " ☼ ".
- Check for voltage (12 V) to the license light coupler.



OUT OF SPECIFICATION

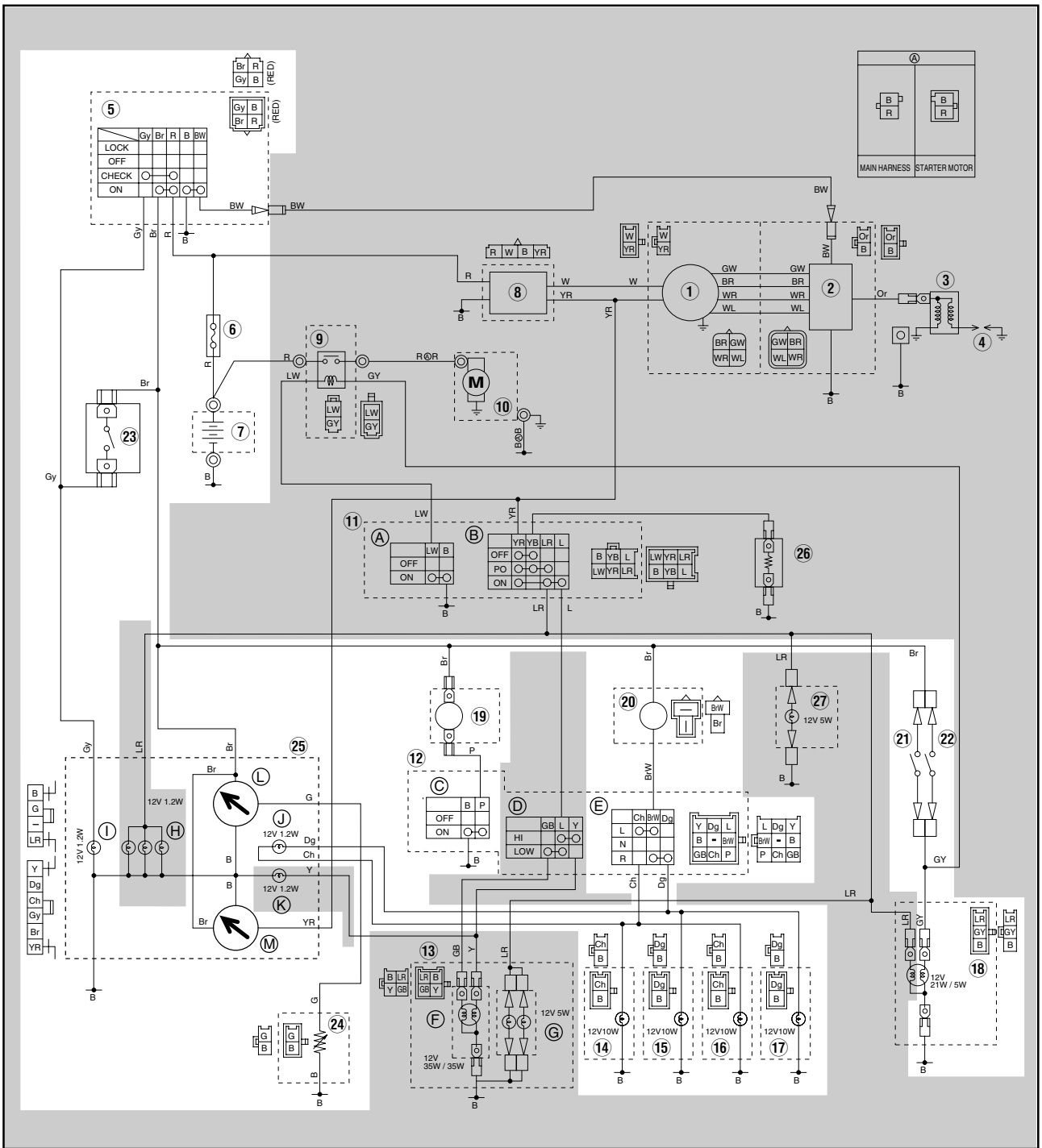
There is a defect in the wire harness between the main switch and the bulb socket connector → Repair.

MEETS SPECIFICATION

Circuit is in good condition.

SIGNAL SYSTEM

CIRCUIT DIAGRAM



⑤ Main switch
⑥ Fuse
⑦ Battery
⑫ Left handle switch
Ⓒ Horn switch
Ⓔ Flasher switch
⑭ Front flasher light (left)
⑮ Front flasher light (right)
⑯ Rear flasher light (left)
⑰ Rear flasher light (right)
⑱ "STOP" light
⑲ Horn
⑳ Flasher relay
㉑ Front brake switch
㉒ Rear brake switch
㉓ Oil level gauge
㉔ Fuel sender
㉕ Meter assembly
Ⓘ Oil indicator light
Ⓙ Flasher indicator light
Ⓛ Fuel meter
Ⓜ Tachometer

TROUBLESHOOTING

FLASHER LIGHTS, TAIL/BRAKE LIGHT, "OIL" WARNING LIGHT DO NOT WORK. HORN DOES NOT SOUND, FUEL METER DOES NOT WORK.

Procedure

Check:

1. Fuse (main)
2. Battery
3. Main switch
4. Connections

NOTE:

- Remove the following parts before proceeding with the troubleshooting:
  1) Side covers and footrest board
  2) Handlebar covers
  3) Front panel
- For accurate troubleshooting use the following special tools:

Pocket tester:
90890-03112

1. Fuse.

Refer to "SWITCH INSPECTION" section.

NO CONTINUITY → Replace the fuse.

CONTINUITY ⇩

2. Battery

- Check the condition of the battery. Refer "CHECKING THE BATTERY" in the Chapter 3.

Battery voltage:
12.8 or more at 20°C

DOES NOT MEET SPECIFICATION →
- Clean battery terminals.
- Charge or replace the battery.

MEETS SPECIFICATION ⇩

3. Main switch

Refer to "SWITCH INSPECTION" in the Chapter 7.

NO CONTINUITY → Replace the main switch.

CONTINUITY ⇩

4. Connections

- Check all connections in the signal system. Refer to "WIRE DIAGRAM".

POOR CONNECTIONS → Repair.

CONTINUITY

Check the condition of each circuit of the signal system.
Refer to "SIGNAL SYSTEM CHECK".

SIGNAL SYSTEM CHECK

1. Horn does not sound.

1."HORN" switch

Refer to "SWITCH INSPECTION".

NO CONTINUITY → Replace the horn switch.

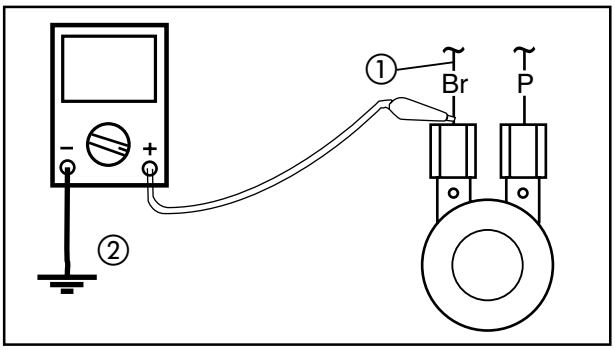
CONTINUITY ⇩

2. Voltage

- Connect the pocket tester (DV20 V) to the horn lead.

Pocket tester (+) lead → Brown ①
Pocket tester (-) lead → Ground ②

- Turn the main switch to "ON".
- Check for voltage (12 V) between "Brown" and the ground.



OUT OF SPECIFICATION → Defect in the wire harness between the main switch and the horn → Repair.

MEETS SPECIFICATION ⇩

3. Horn

- Disconnect the "Pink" lead at the horn terminal.
- Ground the horn terminal with a jumper lead.
- Set the main switch to "ON".

HORN SOUNDS → Horn is in good condition.

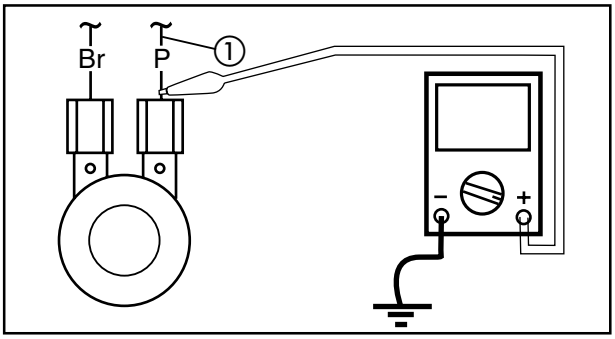
HORN DOES NOT SOUND ⇩

4. Horn

- Connect the pocket tester (DC20 V) to the horn lead.

Pocket tester (+) lead → Pink ①
Pocket tester (-) lead → Ground

- Turn the main switch to "ON".
- Press the "HORN" switch.
- Check the voltage (12V) between "Pink" and ground.



NO CONTINUITY → Replace Horn.

MEETS SPECIFICATON ⇩

Adjust Horn.

2. The brake light does not work.

1. Bulb and socket.

Refer to "SWITCH INSPECTION".

NO CONTINUITY → Replace bulb or socket.

CONTINUITY

2. Brake switch

Refer to "SWITCH INSPECTION".

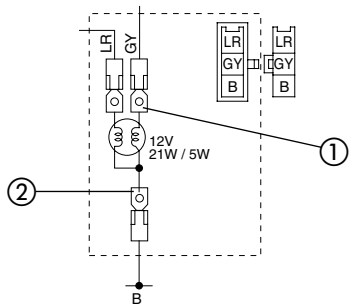
NO CONTINUITY → Brake switch is defect → Replace.

CONTINUITY

3. Voltage

- Connect the pocket tester (DC 20 V) to the bulb socket connectors.

Pocket tester (+) lead → Green/Yellow ①
Pocket tester (-) lead → Black ②



- Turn the main switch to "ON".
- Pull the brake lever.
- Check the voltage (12V) between Green/Yellow and Black.

OUT OF SPECIFICATION → 4. Connections

- There is a defect in the wire harness between the main switch and the taillight bulb socket connector → Repair.
  Refer to "CIRCUIT DIAGRAM OF THE SIGNAL SYSTEM".

MEETS SPECIFICATION

Circuit is in good condition.

3. Flashers and flasher indicator do not work.

1. Bulb and socket

Refer to "SWITCH INSPECTION".

NO CONTINUITY → Replace buld and/or socket.

CONTINUITY ⇩

2. Flasher switch

Refer to "SWITCH INSPECTION".

NO CONTINUITY → Replace the left handlebar switch.

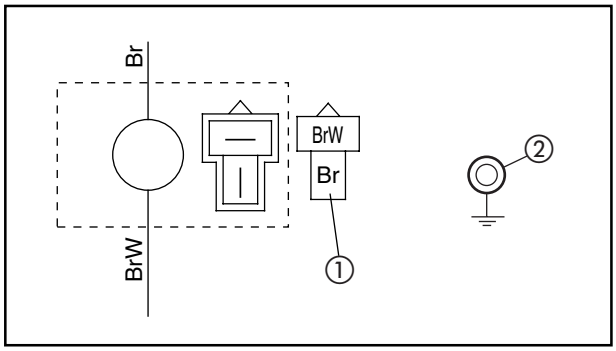
CONTINUITY ⇩

3. Voltage

- Connect the pocket tester (DC 20 V) to the flasher relay.

Pocket tester (+) lead → Brown ①
Pocket tester (-) lead → Ground ②

- Turn the main switch to "ON".
- Check the voltage (12 V) between the "Brown" lead and the Ground.



OUT OF SPECIFICATION → Defect in the wire harness between the main switch and the flasher relay → Repair.

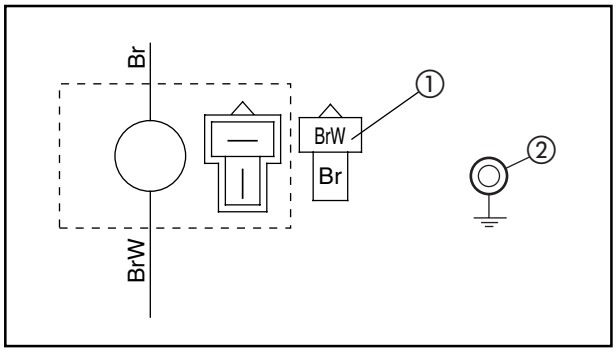
MEETS SPECIFICATION ⇩

4. Voltage

- Connect the pocket tester (DC20 V) to the flasher connector.

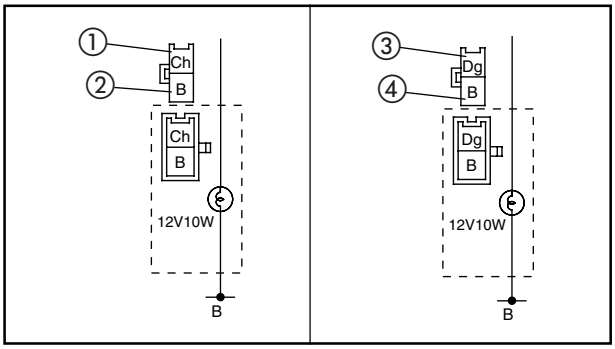
Pocket tester (+) lead → Brown/White ①
Pocket tester (-) lead → Ground ②

- Turn the main switch to "ON".
- Check the voltage (12 V) between "Brown/White" and the ground.



OUT OF SPECIFICATION → Flasher relay defect → Replace.

MEETS SPECIFICATION ⇩



5. Voltage

- Connect the pocket tester (DC 20 V) to the flasher coupler.

Left flasher bulb
Pocket tester (+) lead → Chocolate ①
Pocket tester (-) lead → Black ②

Right flasher bulb
Pocket tester (+) lead → Dark green ③
Pocket tester (-) lead → Black ④

- Turn the main switch "ON".
- Set the "TURN" switch to "L", then to "R".
- Check the voltage (12 V) between "chocolate" and the ground, then "Dark green" and the ground.

OUT OF SPECIFICATION

MEETS SPECIFICATION

This circuit is in good condition.

6. Connections

- Defect in the wire harness between the main switch and the flasher bulb socket → Repair.
  Refer to "WIRING DIAGRAM".

4. The "Oil" indicator light does not work.

1. Bulb and socket

Refer to "SWITCH INSPECTION".

NO CONTINUITY

Replace buld and/or socket.

CONTINUITY

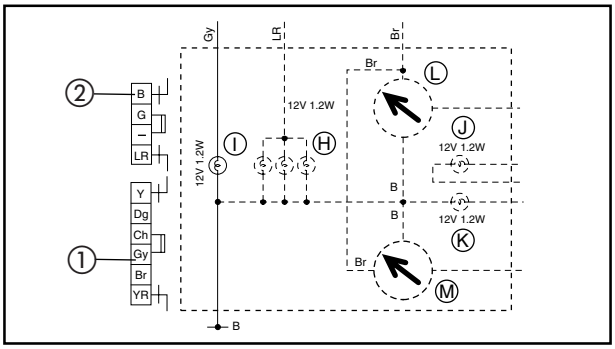
2. Oil level switch

Refer to "SWITCH INSPECTION".

OUT OF SPECIFICATION

Replace oil level switch is defect.

MEETS SPECIFICATION



3. Voltage
• Connect the pocket tester (DC20V) to the bulb socket connector
Pocket tester (+) lead → Grey ① **Pocket tester (-) lead → Black ②**
• Turn the main switch to "CHECK" • Check the voltage (12V) between "Grey" and "Black"

OUT OF SPECIFICATION

6. Connections
• Check all connections in the signal system. Refer to "WIRING DIAGRAM".

MEETS SPECIFICATION

This circuit is in good condition.

5. The fuel meter does not work.

1. Voltage
• Disconnect the fuel sender leads. • Connect the pocket tester (Ω x 100) then (Ωx10) to the fuel sender. • Drain the fuel tank. • Measure the resistance.
Sender unit resistance (empty tank): **90 ~ 100 Ω at 20°C**
• Fill the tank • Measure the resistance.
Sender unit resistance (fuel tank): **1.5 ~ 7.5 Ω at 20°C**

DOES NOT MEET SPECIFICATION

Replace the fuel sender.

MEETS SPECIFICATION

This circuit is in good condition.

?

TRBL SHTG

8

CHAPTER 8.
TROUBLESHOOTING

STARTING FAILURE/ HARD STARTING 8-1
FUEL SYSTEM 8-1
ELECTRICAL SYSTEM 8-1
COMPRESSION SYSTEM 8-2

POOR IDLE SPEED PERFORMANCE 8-2
POOR IDLE SPEED PERFORMANCE 8-2

POOR MEDIUM AND HIGH SPEED PERFORMANCE 8-3
FUEL SYSTEM 8-3
ELECTRICAL SYSTEM 8-3
COMPRESSION SYSTEM 8-3

FAULTY AUTOMATIC (V-BELT TYPE) 8-3
MOTORCYCLE DOES NOT MOVE WHILE ENGINE IS OPERATING ... 8-3
CLUTCH -OUT FAILURE 8-4
POOR STANDING START (LOW CLIMBING ABILITY) 8-4
POOR ACCELERATION (POOR HIGH SPEED) 8-4

OVER HEATING 8-4
OVER HEATING 8-4

IMPROPER KICKING 8-5
SLIPPING 8-5
HARD KICKING 8-5
KICK CRANK NOT RETURNING 8-5

FAULTY BRAKE 8-5
POOR BRAKING EFFECT 8-5

FRONT FORK OIL LEAKAGE AND FRONT FORK MALFUNCTION 8-6
OIL LEAKAGE 8-6
MALFUNCTION 8-6

INSTABLE HANDLING 8-6
INSTABLE HANDLING 8-6

FAULTY SIGNAL AND LIGHTING SYSTEM 8-7

TROUBLESHOOTING

NOTE:
The following troubleshooting does not cover all the possible causes of trouble. It should be helpful, however, as a guide to troubleshooting. Refer to the relative procedure in this manual for inspection, adjustment and replacement of parts.

STARTING FAILURE/HARD STARTING

FUEL SYSTEM

Fuel tank
- Empty
- Clogged fuel filter
- Deteriorated fuel or fuel containing water or foreign material
- Clogged fuel tank cap

Fuel cock
- Clogged fuel hose
- Clogged vacuum
- Faulty diaphragm

Air filter
- Clogged air filter

Carburetor
- Deteriorated fuel, fuel containing water or foreign material
- Clogged pilot jet
- Clogged pilot air passage
- Sucked-in air
- Deformed float
- Groove-worn needle valve
- Improperly sealed valve seat
- Improperly adjusted fuel level
- Improperly set pilot jet
- Clogged starter jet
- Starter plunger malfunction
- Improperly adjusted pilot air screw

ELECTRICAL SYSTEM

Spark plug
- Improper plug gap
- Worn electrodes
- Wire between terminals broken
- Improper heat range
- Faulty spark plug cap

Ignition coil
- Broken or shorted primary/secondary coil
- Faulty spark plug lead
- Broken body

Starter motor
- Faulty starter motor
- Faulty starter relay

CDI unit system
- Faulty CDI unit
- Faulty source coil
- Faulty pick-up coil

Switches and wiring
- Faulty main switch
- Broken or shorted wiring
- Faulty brake switch (front or rear)

COMPRESSION SYSTEM

Cylinder and cylinder head
- Loose spark plug
- Loose cylinder head or cylinder
- Broken cylinder head gasket
- Broken cylinder gasket
- Worn, damaged or seized cylinder

Piston and piston rings
- Improperly installed piston ring
- Worn, fatigued or broken piston ring
- Seized piston ring
- Seized or damaged piston

Crankcase and crankshaft
- Improperly seated crankcase
- Improperly sealed crankcase (damaged oil seal)
- Seized crankshaft

Reed valve
- Deformed reed valve stopper
- Improperly seated reed valve
- Loose intake manifold
- Broken gasket
- Broken reed valve

POOR IDLE SPEED PERFORMANCE

POOR IDLE SPEED PERFORMANCE

Carburetor
- Improperly returned starter plunger
- Clogged or loose pilot jet
- Clogged pilot air jet
- Improperly adjusted idle speed (throttle stop screw)
- Improper throttle cable play
- Flooded carburetor

POOR MEDIUM AND HIGH SPEED PERFORMANCE

FUEL SYSTEM

Fuel tank
- Clogged fuel filter
- Deteriorated fuel or fuel containing water or foreign material
- Clogged fuel tank cap

Fuel cock
- Clogged fuel hose
- Clogged vacuum hose
- Faulty diaphragm

Air filter
- Clogged air filter

Carburetor
- Deteriorated fuel, fuel containing water or foreign material
- Sucked-in air
- Deformed float
- Groove-worn needle valve
- Improperly sealed valve seat
- Improperly set clip position of jet needle
- Improperly adjusted fuel level
- Clogged or loose main jet
- Clogged or loose main nozzle
- Clogged main air passage

ELECTRICAL SYSTEM

Spark plug
- Improper plug gap
- Worn electrodes
- Wire between terminals broken
- Improper heat range
- Faulty spark plug cap

CDI unit system
- Faulty CDI unit
- Faulty source coil
- Faulty pick-up coil

COMPRESSION SYSTEM

Cylinder and cylinder head
- Loose spark plug
- Loose cylinder head or cylinder
- Broken cylinder head gasket
- Broken cylinder gasket
- Worn, damaged or seized cylinder

Piston and piston rings
- Improperly installed piston ring
- Worn, fatigued or broken piston ring
- Seized piston ring
- Seized or damaged piston

Crankcase and crankshaft
- Improperly seated crankcase
- Improperly sealed crankcase (damaged oil seal)
- Seized crankshaft

Reed valve
- Deformed reed valve stopper
- Improperly adjusted reed valve stopper height
- Improperly sealing reed valve
- Loose intake manifold
- Broken gasket
- Broken reed valve

FAULTY AUTOMATIC (V-BELT TYPE)

MOTORCYCLE DOES NOT MOVE WHILE ENGINE IS OPERATING.

V-belt
- Worn, damaged or slippery v-belt

Primary pulley
- Worn or damaged cam plate
- Worn or damaged slider bushing

Secondary pulley
- Broken compression spring
- Pealed lining from clutch shoe
- Worn spline of clutch housing

CLUTCH-OUT FAILURE

Primary pulley
- Seized primary sliding pulley and collar

Secondary pulley
- Broken or fatigued clutch shoe spring

POOR STANDING START (LOW CLIMBING ABILITY)

V-belt
- Worn, damaged or slippery v-belt

Primary pulley
- Worn or improper operation of weight

Secondary pulley
- Fatigued compression spring
- Improper operation of secondary sliding pulley

POOR ACCELERATION (POOR HIGH SPEED)

V-belt
- Worn or greasy V-belt

Secondary pulley
- Worn or greasy clutch shoe
- Improper operation of secondary sliding pulley

OVER HEATING

OVER HEATING

Ignition system
- Improper spark plug gap
- Improper spark plug heat range
- Faulty ignitor unit

Fuel system
- Improper carburetor setting
- Improper fuel level adjustment
- Clogged air cleaner element
- Lean mixture (Air in the autolube pump)

Compression system
- Heavy carbon deposit build-up

Engine oil
- Improper engine oil quality (high viscosity)
- Low engine oil quality

Brakes
- Dragging brake

Cooling fan
- Damaged cooling fan
- Damaged air shrouds

IMPROPER KICKING

SLIPPING

Kick axle assembly
- Low tension of kick clip
- Worn kick axle
- Worn or damaged kick gear
- Damaged kick clip
- Kick clip coming off
- Damaged kick clip stopper

Transmission oil
- Improper quality (low viscosity)
- Deterioration

HARD KICKING

Kick axle assembly
- High tension of kick clip
- Seized kick gear

Crankcase and crankshaft
- Improperly seated crankcase
- Improperly seated crankshaft
- Damaged or seized crankshaft
- Damaged or seized crankshaft bearing

Cylinder, piston and piston ring
- Damaged or seized cylinder
- Damaged or seized piston
- Damaged or seized piston ring

KICK CRANK NOT RETURNING

Kick axle assembly
- Damaged kick return spring
- Kick return spring coming off
- Kick clip coming off
- Damaged kick return spring stopper

FAULTY BRAKE

POOR BRAKING EFFECT

Front disc brake
- Worn brake pads
- Worn disc
- Air in brake fluid
- Leaking brake fluid
- Wrong brake fluid
- Seized main cylinder piston
- Faulty caliper seal kit
- Loose union bolt
- Broken brake hose
- Oily or greasy disc/brake pads
- Improper brake fluid level
- Excessive free play (brake lever)

Rear drum brake
- Worn brake shoe
- Worn or rusty brake drum
- Improperly adjuster brake play
- Improper brake cam lever
- Improper brake shoe position
- Fatigue/damaged return spring
- Oily or greasy brake shoe
- Oily or greasy brake drum
- Broken brake cable

FRONT FORK OIL LEAKAGE AND FRONT FORK MALFUNCTION

OIL LEAKAGE

- Bent, damaged or rusty inner tube
- Damaged or cracked outer tube
- Damaged oil seal lip
- Improperly installed oil seal
- Improper oil level (too much)
- Loose damper rod holding bolt
- Broken cap bolt O-ring
- Loose drain bolt or damaged drain bolt gasket

MALFUNCTION

- Bent, deformed or damaged inner tube
- Bent or deformed outer tube
- Damaged fork spring
- Worn or damaged slide metal
- Bent or damaged damper rod
- Improper oil viscosity
- Improper oil level

INSTABLE HANDLING

INSTABLE HANDLING

Handlebar

- Improperly installed or bent

Steering

- Improperly installed steering column (Improperly tightened ring nut)
- Bent steering column
- Damaged ball bearing or bearing race

Front forks

- Broken damper spring
- Bent or deformed suspension arm and pivots
- Oil level

Tires

- Incorrect tire pressure
- Uneven tire pressures on both sides
- Unevenly worn tires

Wheels

- Damaged bearing
- Bent or loose wheel axle
- Excessive wheel run-out

Frame

- Twisted
- Damaged head pipe
- Improperly installed bearing race

Engine bracket

- Bent or damaged

Rear shock absorber

- Fatigued spring
- Oil leakage

FAULTY SIGNAL AND LIGHTING SYSTEM

Headlight dark
- Improper bulb
- Too many electric accessories
- Hard charging (broken charging coil)
- Incorrect connection
- Improperly grounded
- Poor contacts (main or light switch)
- Bulb life expired (high internal resistance)

Bulb burnt out
- Improper bulb
- Improperly grounded
- Faulty main and/or light switch
- Bulb life expired

Flasher winks slower
- Faulty flasher relay
- Insufficient battery capacity (nearly discharged)
- Improper bulb
- Faulty main and/or flasher switch

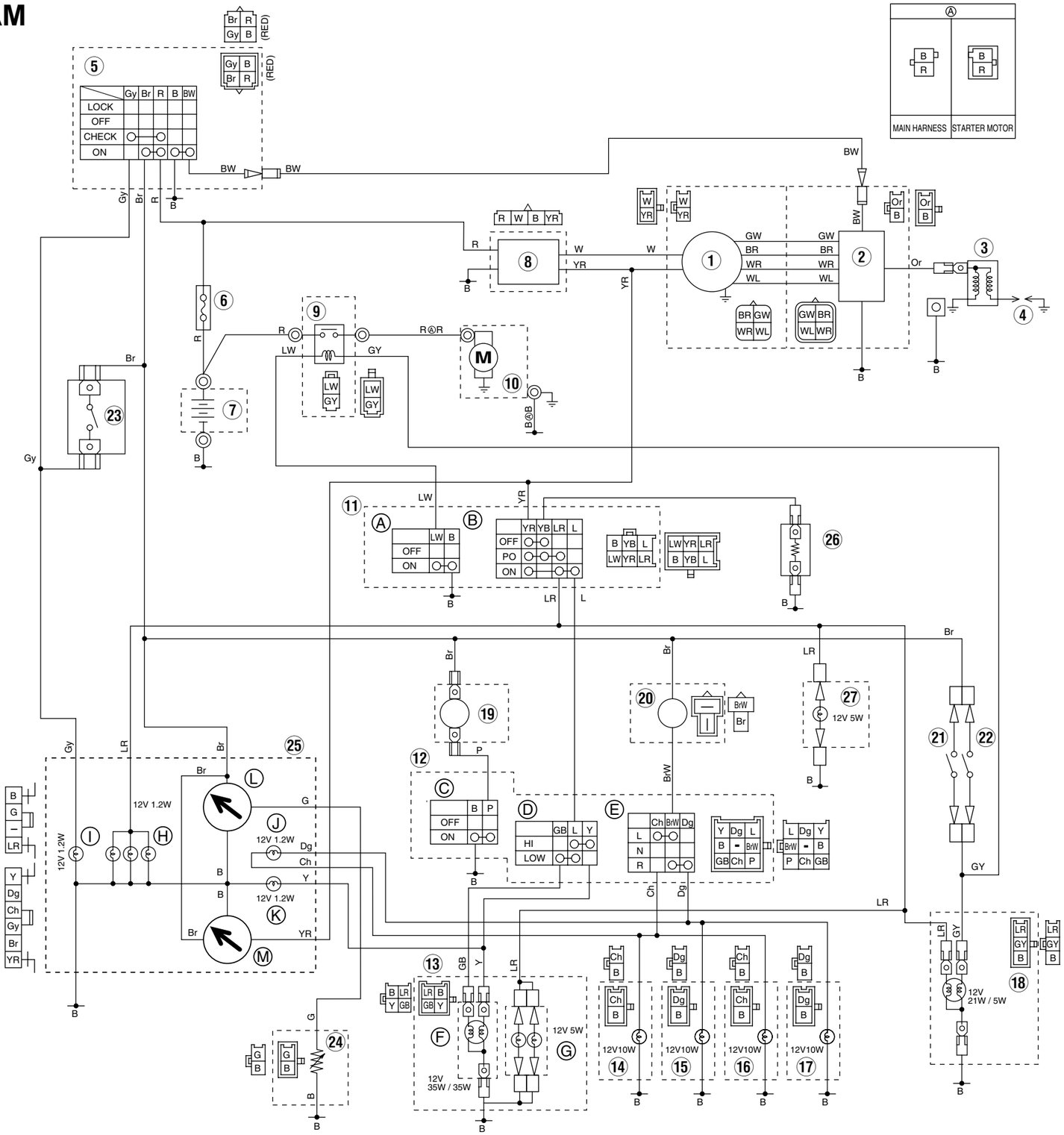
Flasher winks quicker
- Improper bulb
- Faulty flasher relay

Flasher does not light
- Improperly grounded
- Discharged battery
- Faulty flasher switch
- Faulty flasher relay
- Broken wire harness
- Loosely connected coupler
- Bulb burnt out
- Faulty fuse

Flasher keeps on
- Faulty flasher relay
- Insufficient battery capacity (nearly discharged)

Horn is inoperative
- Faulty battery
- Faulty fuse
- Faulty main and/or horn switch
- Improperly adjusted horn
- Faulty horn
- Broken wire harness

YQ100 WIRING DIAGRAM



COLOR CODE

B	Black
Br	Brown
Ch	Chocolate
Dg	Dark green
G	Green
Gy	Grey
L	Blue
Or	Orange
P	Pink
R	Red
W	White
Y	Yellow
B/R	Black/Red
B/W	Black/White
Br/W	Brown/White
G/B	Green/Black
G/W	Green/White
G/Y	Green/Yellow
L/R	Blue/Red
L/W	Blue/White
W/L	White/Blue
W/R	White/Red
Y/B	Yellow/Black
Y/R	Yellow/Red

① C.D.I. magneto
② C.D.I. unit
③ Ignition coil
④ Spark plug
⑤ Main switch
⑥ Fuse
⑦ Battery
⑧ Rectifier / regulator
⑨ Starter relay
⑩ Starter motor
⑪ Right handle switch
  Ⓐ Starter switch
  Ⓑ Light switch
⑫ Left handle switch
  Ⓒ "HORN" switch
  Ⓓ "Hi / Lo" switch
  Ⓔ Flasher switch
⑬ Head light assy
  Ⓕ Head light
  Ⓖ Position light
⑭ Left front flasher
⑮ Right front flasher
⑯ Left rear flasher
⑰ Right rear flasher
⑱ Tail / "STOP" light
⑲ Horn
⑳ Flasher relay
㉑ Front stop switch
㉒ Rear stop switch
㉓ Oil level gauge
㉔ Fuel sender
㉕ Meter assembly
  Ⓗ Meter light
  Ⓘ Oil indicator light
  Ⓙ Flasher indicator light
  Ⓚ High beam indicator light
  Ⓛ Fuel meter
  Ⓜ Tachometer
㉖ Resistor
㉗ License light